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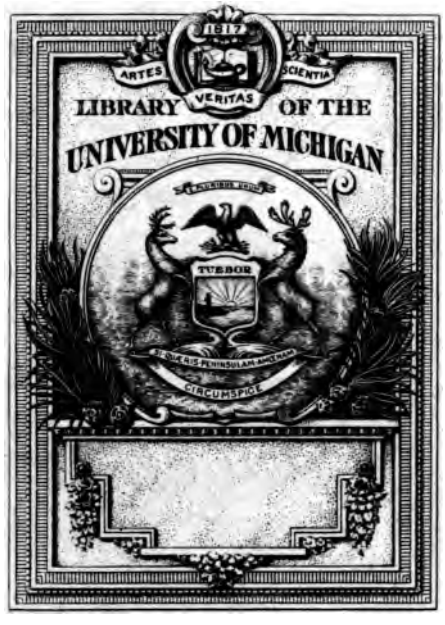

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FAMILY OF BACTRIAN CAMELS

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TWENTY-THIRD ANNUAL REPORT

OF THE

NEW YORK ZOOLOGICAL SOCIETY

CHARTERED IN 1895

OBJECTS OF THE SOCIETY

A PUBLIC ZOOLOGICAL PARK
THE PRESERVATION OF OUR NATIVE ANIMALS
THE PROMOTION OF ZOOLOGY

1918

NEW YORK
OFFICE OF THE SOCIETY, 111 BROADWAY
JANUARY, 1919

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*SHERMAN, WILLIAM WATTS,
SHEWAN, JAMES,
SHEARSON, EDWARD,
SHIELDS, GEORGE O.,
SLOAN, BENSON B.,
*SLOAN, JOHN,
SLOAN, MALCOLM D.,
*SLOAN, SAMUEL,
SLOAN, SAMUEL,
SPEYER, JAMES,
SQUIER, STUART C.,
STETSON, FRANCIS LYNDE,
STEWART, WM. R., JR.,
STOKES, MISS OLIVIA E. PHELPS,
STRAIGHT, MRS. WILLARD,
STREETER, D. D.,
*STURGES, FREDERICK,
TARLTON, LESLIE JEFFERIS,
*THALMAN, ERNST,
THAYER, MRS. ETHEL RANDOLPH,
THOMPSON, LEWIS S.,
TILFORD, FRANK,
THOMPSON, WILLIAM P.,
TOD, ROBERT E.,
TODD, WILLIAM R.,
TOWNSEND, DR. CHARLES H.,
TREVOR, HENRY G.,
TREVOR, JOHN B.,
TRITTON, CLAUDE H.,
TUCK, EDWARD,
UHLMANN, FREDERICK,
VAIL, THEO. N.,
VAN NORDEN, MRS. GRACE T.,
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*VANDERBILT, ALFRED G.,
VARNUM, MRS. JAMES M.,
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WAID, D. EVERETT,
WAINWRIGHT, RICHARD T.,
*WALKER, DR. HENRY FREEMAN,
WANAMAKER, RODMAN,
WARBURG, FELIX M.,
*WARREN, SAMUEL D.,
*WATSON, FRANCIS A.,
WATSON, JAMES S.,
WEBB, DR. W. SEWARD,
*WELCHER, MRS. FANNY AVERY,
*WENDELL, EVERT JANSEN,
WETMORE, CHARLES W.,
WETMORE, GEORGE PEABODY,
WHARTON, WILLIAM P.,
WHEALTON, LOUIS N.,
WHITE, JOHN JAY, JR.,
*WHITEHEAD, PAUL,
WHITNEY, CASPAR,
WHITNEY, CORNELIUS VANDERBILT,
WHITNEY, HARRY PAYNE,
WHITNEY, PAYNE,
WILLETS, ELMORE A.,
WILLETS, HOWARD,
WILLIAMS, CLARK,
WING, JOHN MORGAN,
*WING, JOHN D.,
WINTHROP, BEEKMAN,

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*Winthrop, Egerton L.,
Withers, George B.,
Woerishoffer, Mrs. Anna,
Woodward, William,
Worthington, C. C.,

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Agnew, Mrs. Cornelius R.,
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Alexander, Douglas,

*Deceased

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BERNHEIM, GEORGE B.,
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*BERNHEIMER, SIMON E.,
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BORIE, A. E.,
BORLAND, J. NELSON,
*BORLAND, MRS. JOHN,
BORLAND, WILLIAM G.,
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BOULTON, WILLIAM B.,
BOWDOIN, MISS EDITH G.,
BOWDOIN, GEORGE TEMPLE,
*BOWDOIN, MRS. TEMPLE,
BOWEN, CLARENCE WINTHROP,
BOWEN, JAMES,
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BRINCKERHOFF, ALEX. G.,
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BRISTOW, WILLIAM B.,
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BROWNING, WILLIAM H.,
BROWNING, J. A.,
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*BRUNNOW, RUDOLPH E.,
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BRYSON, T. B.,
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BUCKNER, MORTIMER NORTON,
BUCKNER, THOMAS A.,
BUDD, HENRY A.,
BUECHNER, C. FRED,
BULKLEY, EDWIN M.,
BULKLEY, MRS. EDWIN M.,
BULKLEY, L. DUNCAN,
BULL, J. EDGAR,

*DECEASED

*Bull, William L.,
Burden, James A., Jr.,
Burden, Mrs. W. A. M.,
Burgess, Edward G.,
Burleigh, Mrs. George W.,
Burnham, Mrs. Wm. A.,
*Burnham, Mrs. Douglas W.,
Burrill, Edward L.,
Burrows, Wilson A.,
*Bush, John S.,
Busk, Fred T.,
Butler, Arthur W.,
*Butler, Charles D.,
Butler, Charles Stewart,
*Butler, Mrs. P. H.,
Butler, Miss Virginia,
Byrne, Mrs. James,
Cabot, F. H.,
Caesar, Henry A.,
Cahen, Julius P.,
Cahn, Arthur L.,
*Calef, Amos H.,
Callender, Walter R.,
Calman, Henry L.,
Cammann, Edward C.,
Cammann, Henry Lorillard,
Cammann, Herman H.,
Campbell, Donald,
Candee, Howard S.,
Canfield, George Folger,
*Cannon James G.,
Canrobert A H.,
Carey Frederick F.,
Carlton, Newcomb,
Carpender, William,
Carpender, C. L.,
Cartier, P. C.,
Case, Henry P.,
Case, J. Herbert,
Cass, Charles Anderson,
Cassard, William J.,
*Caswell, John H.,
Cathcart, Miss Jennie R.,
Cerio, Mrs. George,
Chabot, Theodore J.,
Chalmers, Arthur A.,
Chamberlain, William B.,
Chambers, Frank R.,
Chambers, Hilary R.,
Chambers, Miss Katherine,
*Champollion, Andre,
Champollion, Mrs. Andre C.,
Chanler, Robert W.,
Chapin, Miss Maria Bowen,
*Chapman, Arthur,
Chapman, Miss Fanny,
Chapman, Henry Otis,
Chapman, John Jay,
*Chauncey, Elihu,
Chaves, Jose Edward,
Cheney, George L.,
Cheney, Louis R.,
Cheney, Mrs. Knight Dexter, Jr.,
Child, Mrs. Lewis P.,
Childs, Eversley,
Childs, Starling W.,
Childs, William H.,
Chisholm, Mrs. Hugh J., Sr.,
Choate, Joseph K.,
Christiancy, George A. C.,
Chubb, Percy,
Church, Charles T.,
Church, E. D., Jr.,
Church, George H.,
Church, F. S.,
Church, Louis P.,
*Church, Theodore W.,
Claflin, John,
Clancy, John Evarts,
Clapp, A. P.,
Clark, Chas. Hopkins,
Clark, Charles Martin,
Clark, D. Crawford,
Clark, Edward H.,
Clark, Mrs. Edward Hardy,
Clark, Miss E. Mabel,
Clark, Herbert L.,
Clark, J. Francis Aloysius,
*Clark, J. Mitchell,
Clark, Mrs. John C.,
Clark, John W.,
Clark, Miss Marian Averell,
Clark, W. A.,
Clarke, E. A. S.,
Clarke, Lewis L.,
Clarke, Thomas Shields,
Clarke, Thomas B.,
*Clausen, George C.,
Clemens, Dr. James B.,
Clews, Mrs. James B.,
Clyde, William P.,
Cochran, Mrs. Gifford A.,
Cochran, G. D.,
Cochrane, A. W. S.,
Cockcroft, Miss E. V.,
Cockran, Mrs. W. Bourke,
*Codman Mrs. Ogden,
Coe, Charles A.,
Coffin, Francis A.,
Coffin, William Edward,
Coffin, Mrs. Sturgis,
Colburn, Albert E.,
Colby, Howard A.,
Cole, Edward F.,
Cole, Mrs. Rufus,
Collier, Mrs. R. J.,

*Deceased

Collins, Clarence Lyman,
*Collins, Miss Gertrude,
*Collins, Dr. Stacy Budd,
Colt, Harris D.,
Colvin, William S.,
Colt, Richard C.,
Conboy, Martin,
Conklin, Roland R.,
Comstock, Mrs. H. G.,
Cone, Frederick H.,
Conheim, Hermann,
Conkling, Paul B.,
Connell, Herbert Stanley,
Content, Harry,
Converse, Miss Mary E.,
Conway, Mrs. Maud Allis,
Conyngham, John N.,
Cook, Mrs. Charles T.,
Coombe, T. Gorton,
Cooper, Theodore,
Corbett, Mrs. Henry L.,
Corbin, Austin,
Coriell, William Wallace,
Corlies, Howard,
Cornell, Miss Emily Lefferts,
Corning, C. R.,
Coster, Miss Sylvia deG.,
Cowdin, Winthrop,
*Cowles, David S.,
*Cox, Charles F.,
*Cox, Jennings S.,
*Cram, Mrs. Kathrine G.,
*Crane, Jonathan, H.,
Crane, Mrs. Jonathan H.,
Craig, Dr. Burdette P.,
Cravath, Mrs. Paul D.,
Crawford, Robert L.,
Crawford, William,
Crimmins, Thomas,
Crocker, Robert S.,
Crocker, William T.,
Crocker, Edward,
*Cromwell, Frederic,
Cromwell, James W.,
Cromwell, Lincoln,
Crosby, Maunsell S.,
Cross, Mrs. C. Vanderbilt,
Cross, George D.,
Cross, W. Redmond,
Crossley, G. Reginald,
*Cruickshank, James,
Cunningham, W. deL.,
Curiel, H.,
Currey, J. B.,
Curtis, F. K.,
Cushman, Charles V. B.,
Cutter, Ralph L.,
Cutting, R. Fulton,
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Cutting, Mrs. W. Bayard,
Cutting, Heyward,
Cuyler, Miss Eleanor deG.,
*Daab, Martin,
Dadmun, George E.,
Dailey, Granville F.,
Dallett, Frederic A.,
Dalziel, Mrs. F. Y.,
*Damon, William F.,
Davenport, Mrs. Ira,
Davidge, William H.,
Davies, Mrs. Frederick M.,
Davies, J. Clarence,
Davies, Julien Tappan,
*Davis, Daniel A.,
Davis, David T.,
Davis, Gherardi,
Davis, Howland,
*Davis, Joseph P.,
Davis, Morgan,
Davis, W. J.,
Davison, Miss Ella H.,
Davison, Miss Alice M.,
Davison, Mrs. Henry P.,
Day, Miss Laura V.,
*Day, Mrs. Henry Mills,
Deane, W. B.,
DeForest, Robert W.,
de Clairmont, Dr. A.,
Degener, J. F.,
De Forest, Henry W.,
DeGoicouria, A. V.,
de Heredia, Mrs. Carlos M.,
Delafield, Edward C.,
Delafield, Frederick P.,
Delafield, Lewis L.,
*Delafield, Miss Julia Livingston,
Delano, Eugene,
Delano, Warren,
Delano, Moreau,
Delanoy, William C.,
deLaugier-Villars, Countess,
de Long, Mrs. George B.,
Deming, L. C.,
Depew, Mrs. Chauncey M.,
deRham, Mrs. H. Casimir,
Dery, D. George,
Despard, Walter D.,
De Tynfo, Ignacio,
Devereux, Walter B.,
DeVinne, T. B.,
*DeVinne, Theodore Low,
*DeWitt, George G.,
*Dey, Anthony,
Deyo, Robert E.,
Dick, Mrs. Fairman Rogers,
deZaldo, Frederick,

*Deceased

Dickerson, E. N.,
Dickey, Mrs. Charles D.,
Dickinson, John W.,
Dickinson, Mrs. L. M.,
Dickinson, Mrs. John M.,
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Diehl, George H., Jr.,
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Dillon, W. B.,
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Dinsmore, Mrs. W. B.,
Dixon, Theodore P.,
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*Dommerich, L. F.,
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Doubleday, F. N.,
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Douglass, Alfred,
Dowd, Joseph,
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DuBois, Dr. Matthew B.,
Duer, Mrs. Denning,
Duel, Dr. Arthur B.,
Duer, Mrs. John Beverley,
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Duncan, Stuart,
Duncan, Mrs. Stuart,
*Duncan, W. Butler,
Dundas, Ralph Wurts,
Dunham, Dr. Carroll,
*Dunham, Mrs. G. H.,
Dunham, Lewis L.,
Dunn, Gano,
Durkee, A. W.,
Durkee, Richard P. H.,
Durkee, Mrs. R. P. H.,
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Dutcher, John Gerow,
DuVal, Mrs. Horace C.,
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Dwight, Mrs. Winthrop,
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Eames, John C.,
Eastman, Miss Anne K.,
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Ebermann, Mrs. Ernest,
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Eckart, Edmund,
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Edgar, Herman L. R.,
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Edgar, Mrs. J. Clifton,
*Edgell, George S.,
Edmonds, John W.,
*Edwards, William Seymour,
Eger, Theodor G.,
Egerton, M.,
Ehret, Louis J.,
Eidlitz, Robert James,
Eilers, Karl,
Eldridge, Frederick L.,
Eldridge, Lewis A.,
Eldridge, William T.,
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Ellsworth, Lincoln,
Elting, Dr. Arthur W.,
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Emerson, Mrs. William,
Emmet, Miss Lydia F.,
Emmet, Robert Temple,
Endicott, Robert,
*Eno, John Chester,
Eno, Miss Mary Pinchot,
Erdmann, Martin,
Erdmann, William,
Erlanger, Milton S.,
Esberg, Henry,
Ettlinger, Louis,
Estabrook, Arthur F.,
Eustis, John E.,
*Evans, Richard,
Evans, S. M.,
Evarts, A. W.,

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EVARTS, MISS MARY,
EVELAND, FRANK,
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FABBRI, ERNESTO G.,
FABBRI, MRS. ERNESTO G.,
FABER, EBERHARD,
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FAHNESTOCK, MRS. ERNEST,
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FARQUHAR, PERCIVAL,
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FAY, FRANCIS B.,
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*FELLOWS, WILLIAM GORDON,
FERGUSON, MISS ELIZABETH D.,
*FERGUSON, REV. HENRY,
FERGUSON, WILLIAM C.,
FEUSS, CAPT. ANDREW W.,
FEUSTMAN, LEON P.,
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FIELD, MRS. WILLIAM H.,
*FIELDING, GEORGE T.,
FINCH, EDWARD B.,
FINCKE, MRS. REGINALD,
FISCHER, WILLIAM H.,
FISH, MRS. HAMILTON,
FISHER, PROF. IRVING,
FISHER, L. G.,
FLAGLER, HARRY HARKNESS,
FLANNERY, MRS. JOSEPH A.,
FLEISCHMANN, UDO M.,
FLEITMANN, FREDERICK T.,
FLEMING, HENRY S.,
FLEMING, MATTHEW C.,
FLINT, AUSTIN,
FLOYD-JONES, EDWARD H.,
FOHR, FRANZ,
FOOT, SANDFORD DWIGHT,
*FOOT, JAMES D.,
FORAN, GEORGE J.,
FORD, MISS LESTA,
FORDYCE, JOHN A.,
FOSTER, EDWARD W.,
FOSTER, GIRAUD,
FOSTER, MACOMB G.,
FOSTER, SCOTT,
FOWLER, MRS. ANDERSON,
FOWLER, CHARLES, JR.,
*FOWLER, THOMAS POWELL,
FOX, MISS ALICE BLEECHER,
FOX, HUGH F.,
*FRALEY, JOHN U.,
FRANK, LOUIS,
FRANKO, NATHAN,
FRASER, ALEX. J.,
FRASER, ALEX. V.,
FRASER, MRS. GEORGE C.,
*FRASER, MRS. GEORGE S.,
FRASER, MISS J. K.,
*FRASER, WILLIAM C.,
FREEMAN, MISS GERTRUDE A.,
FRENCH, DANIEL C.,
FRENCH, MRS. JOHN,
FRENCH, MISS L. H.,
*FRIED, SAMSON,
FRIES, DR. HAROLD H.,
FRISSELL, A. S.,
FROST, AARON V.,
FROTHINGHAM, JOHN W.,
FULD, FELIX,
*FULDA, DR. CLEMENS,
FULLER, CHARLES D.,
FULLER, MRS. EUGENE,
FUNKE, EDMUND A.,
*FURNISS, MISS CLEMENTINA,
GAILLARD, MRS. WM. O.,
GALLATIN, ALBERT,
GALLATIN, MRS. ALBERT,
GALLATIN, GOELET,
GALLATIN, MRS. GOELET,
GALLAWAY, MERRILL W.,
GALLOWHUR, W. G.,
GARDINER, CHARLES B.,
GARRETT, MISS LAURA B.,
GARRETT, JOHN W.,
GARRISON, MRS. J. H.,
GARRETTSON, MISS HELEN JAY,
GAUTIER, DUDLEY G.,
GAYLEY, MRS. GARDINER,
GEDDES, DONALD G.,
GARRARD, MISS MARGARET H.,
GERRISH, JOHN BROWN,
GERRY, PETER G.,
GERRY, ROBERT L.,
GETTY, HENRY N.,
GILBERT, CLINTON,
GILDERSLEEVE, HON. H. A.,
GILLESPIE, ROBERT MCM.,
GILLIES, EDWIN J.,
GILSEY, HENRY,
GLAZIER, HENRY S.,

*DECEASED

GLYN, W. E.,
GOADBY, W. H.,
*GODDARD, FREDERIC N.,
GODDARD, MRS. FREDERIC N.,
GODFREY, MRS. E. D.,
GOLDMANN, JULIUS,
GOLDMANN, NATHAN,
GOOD, REV. ROBERT,
GOODHUE, CHARLES E.,
*GOODHUE, MRS. S. C.,
GOODWIN, GEORGE B.,
GOODWIN, MRS. J. J.,
GOODWIN, JAMES L.,
GOODWIN, GRENVILLE,
GOODWIN, H. SAGE,
GOODWIN, JOHN B. L.,
GOODWIN, WALTER L.,
GOODWIN, WALTER L., JR.,
GORDON, MISS CLARA J.,
GOTTHELF, CHARLES,
GOTTHELF, HERMAN,
GOTTHOLD, ARTHUR F.,
GOTTHOLD, FREDERIC,
GOULD, CHARLES A.,
GOULD, CHARLES W.,
GOULD, DR. FREDERIC S.,
GOULD, EDWIN,
GOULD, MRS. EDWIN,
GRAF, WILLIAM,
GRAMAM, MRS. GEORGE S.,
*GRANT, R. S.,
GRANT, LAWRENCE,
GRANT, MRS. DE FOREST,
GRAVES, GEORGE COE,
GRAVES, HENRY, JR.,
GRAVES, J. P.,
GRAY, HENRY G.,
GRAY, MRS. H. WINTHROP,
GREENE, G. S., JR.,
GREENOUGH, JOHN,
GREENOUGH, MRS. JOHN,
*GREENWOOD, ISAAC J.,
GREENWOOD, JOSEPH R.,
GREER, CHARLES,
GREER, MRS. LOUIS MORRIS,
GRIEB, WILLIAM G.,
*GRIFFIN, MRS. WILLIAM P.,
GRIFFITH, MISS MARGARETTE E.,
GRIFFITH, MISS SUSAN D.,
GRIGG, HARRY K.,
GRINNELL, E. MORGAN,
GRISCOM, CLEMENT A., JR.,
GRISWOLD, MRS. F. GRAY,
*GRISWOLD, GEORGE,
GRUNDNER, M.,
GROSS, FRANK,
GUGGENHEIM, HARRY F.,
GUGGENHEIM, SIMON,
GUGGENHEIMER, MRS. ELIZA,
GUINZBURG, A. M.,
GUITERAS, DR. RAMON,
GURNEE, WALTER S.,
HAAS, GEORGE C.,
HAFFEN, JOHN M.,
*HAGARD, ROWLAND GIBSON,
HAGE, JOHN D.,
HAIGHT, CHARLES S.,
HAINES, CHARLES D.,
HALKETT, MRS. SARAH STOKES,
HALL, A. C.,
HALL, FRANK L.,
*HALLE, JACQUES S.,
HALLOCK, CHARLES P.,
HALLS, WILLIAM, JR.,
HALSEY, CHARLES W.,
HALSEY, HERBERT DRAKE,
*HALSTEAD, MISS L. P.,
HAMANN, WILLIAM A.,
HAMBLETON, T. EDWARD,
HAMERSLEY, LOUIS GORDON,
*HAMILTON, MISS ADELAIDE,
HAMILTON, MISS ELIZABETH S.,
HAMILTON, MRS. WILLIAM PIERSON,
*HAMMOND, JAMES B.,
HAMMOND, MRS. JOHN HENRY,
HAMMOND, OGDEN H.,
HAMMOND, WILLIAM F.,
HANCE, JOHN A.,
*HANSMANN, CARL A.,
*HARD, ANSON W.,
*HARD, MRS. ANSON W.,
HARMON, MRS. CLIFFORD,
HARPER, LATHROP C.,
HARRIMAN, MRS. HERBERT M.,
HARRIMAN, W. A.,
HARRISON, MRS. W. HENRY,
HARRIS, CHARLES C.,
HART, HAROLD G.,
HARTSHORNE, J. M.,
HASSLACHER, JACOB,
HASTINGS, MRS. THOMAS,
HATHAWAY, CHARLES,
HAVEMEYER, HENRY,
HAVEMEYER, J. C.,
HAVEN, GEORGE G.,
HAVEN, J. WOODWARD,
HAVENS, ALBERT G.,
HAWK, MRS. WILLIAM SAMUEL,
*HAYES, MRS. R. TOMERS,
HAYNES, WILLIAM DEFOREST,
HAZEN, GEORGE H.,
HECHT, RUDOLF,
HECKER, DR. ANTON J.,
HECK, GEORGE C.,
HECKSCHER, MRS. AUGUST,
HEDGES, JOB E.,

*DECEASED

Heide, Henry, Jr.,
*Heiman, Abraham,
Heiman, E.,
Heintz, John C.,
*Heitemeyer, Clemens,
Hemming, H. G.,
Hencken, Hancke,
Henderson, John B.,
*Hendricks, Francis,
Henderson, Norman,
Henry, Francis A.,
Henning, Emil F.,
Hepburn, Mrs. A. Barton,
Hermann, Bernard F.,
Hermann, Mrs. Ferdinand,
*Hermann, Ferdinand,
Herrick, Harold,
*Herrman, Mrs. Esther,
Herrman, Mrs. Henry S.,
Herter, Mrs. Albert,
*Hess, Selmar,
*Hewitt, Mrs. Abram S.,
Hewitt, Miss Sarah C.,
Hewitt, Herbert H.,
Hewitt, Peter Cooper,
Hexamer, A. P.,
Hicks, E. Pierpont,
Hicks, John M. W.,
Higgins Richard H.,
Higginson Mrs. J. J.,
Hill, E. B.,
Hill, Robert C.,
Hilis, Dr. Alfred K.,
Hinchman, Walter,
Hinckley. Mrs. Samuel Neilson,
Hines, Miss Helen Macfarlane,
Hird, Samuel,
Hirsch, Charles S.,
Hirschland, Franz H.,
Hochschild, Berthold,
Hodges, Harrison B.,
Hoe, Mrs. Robert,
Hoffman, Charles Frederick,
Hoffman, Miss M. U.,
Hoffman, Mrs. William M. V.,
Hogg, James A.,
Holbrook, Mrs. Edward,
*Holden, Edwin R.,
Hollister, George C.,
*Hollister, William H.,
Holter, Mrs. E. O.,
Homes, Henry F.,
Hooley, Edwin S.,
Hooker, Dr. Ransom S.,
Hopkins, Russell,
Hoppin, Miss Frances,
Hoppin, Hamilton L.,
Hoppin, William W., Jr.,
Hornaday, Mrs. J. C.,
Horr, L. William,
Horsman Edward J., Jr.,
Hoskier, H C.,
*Hotchkin W B.,
Iousman, Clarence J.,
Howell, T. A.,
*Howland, Henry E.,
Howland, Mrs. Henry E.,
Hoyt, Alfred O.,
Hoyt, Colgate,
Hoyt, Edwin,
Hoyt Mrs. Henry R.,
Hoyt, Mrs. Jesse,
Hoyt, John S.,
Hoyt, Miss Virginia Scott,
Hoyt, Walter S.,
Hubbard, Walter C.,
Huff, E. S.,
Hulse, Richard J. E.,
Hungerford, Richard S.,
Hunn, Arthur B.,
Huntington, Mrs. Robert P.,
Huntington, Ford,
*Huntington, Rev. W. R.,
Huntman, Rev. Gerard H.,
Hupfel, J. Christian G.
*Hurlbut, Frank M.,
Husted, Miss M. Katharine,
Husted, Seymour L., Jr.,
Hutchins, Augustus Schell,
Hutchins, Harley D.,
Hutchinson, Cary T.,
*Hutter, Karl,
Huyler, C. D.,
Huyler, F. D.,
Hyde, Augustus L.,
Hyde, B T Babbitt,
Hyde, Dr. Frederick E.,
Hyde, Mrs. William H.,
Hyde, W Truslow
Hyde, Mrs. E. Francis,
Ibbeken Anthony G.,
Ijams, J T.,
Inches, George B.,
Ingersoll, Robert H.,
Innis, William R.,
Irons, Henry C.,
Iselin, C. Oliver,
Iselin, Miss Georgine,
Iselin, John H.,
Iselin, Miss Louise M.,
Iselin, William E.,
Iselin, Mrs. William E.,
Iselin, William O'Donnell,
Isham, Charles B.,
*Isham, Samuel,
Isham, William B.,

*Deceased.

Israel, Leon,
*Jackson, Dr. George Thomas,
*Jackson, R. C.,
Jackson, R. Halsey,
*Jackson, Samuel Macauley,
Jacob, Lawrence,
Jacobi, Dr. A.,
Jacobs, Samuel K.,
Jacobus, John S.,
Jacquelin, Herbert T. B.,
James, Mrs. Arthur Curtiss,
James, Henry, Jr.,
James, Dr. Robert C.,
James, Mrs. Wortham,
James, Mrs. Walter B.,
*Janeway, Dr. Edward G.,
Jenkins, Mrs. Grace Hartley,
Jenkins, A. W.,
Jenkins, Mrs. Helen H.,
Jenkins, J. D.,
*Jenkins, Michael,
Jenkins, William B.,
*Jenkins, Matthew C.,
Jenks, Robert I.,
Jennings, Frederick B.,
*Jennings, Philander R.,
Jennings, Sidney J.,
Jennings, Walter,
Jesup, Mrs. James R.,
Jesup, Richard M.,
John, Robert,
Johnson, F. Coit,
Johnson, Guy B.,
Johnson, Gilbert H.,
Johnston, J. Herbert,
Johnston, William J.,
*Joline, Adrian Hoffman,
Jones, Mrs. A. Mason,
Jones, Mrs. Cadwalader,
Jones, Charles H.,
Jones, H. Bolton,
*Jones, Dwight A.,
Jones, Lewis Q.,
*Jones, Townsend,
Judson, H. I.,
Kahn, Felix E.,
Kahn, Louis,
Kahn, Dr. Robert J.,
Kane, Mrs. Arthur S.,
Kane, Mrs. DeLancey,
Karcher, Frank J.,
Karelsen, Eph A.,
Kast, Dr. Ludwig,
Kean, Hamilton Fish,
Kean, Mrs. Hamilton Fish,
Keech, Frank B.,
Keeler, Mrs. C. B.,
Keen, Barton L.,
Keil, Henry F.,
Kelchner, William W.,
*Kellogg, Mrs. Charles,
Kellogg, J. Prentice,
*Kelly, Eugene,
Kelly, Horace R.,
Kennedy, Edward G.,
Kennedy, Mrs. John Stewart,
Kennedy, Mrs. H. Van Rensselaer,
Kennerly, Miss M. M.,
Kent, Edwin C.,
Kephart, Rev. William H.,
Keppel, David,
*Keppel, Frederick,
Kernan, Mrs. Walter N.,
Ketcham, Irving M.,
Keuffel, W. G.,
Keyes, Mrs. Charles W.,
Keyser, Mrs. Samuel,
Kimball, Alfred R.,
King, Augustus F.,
King, Miss Ellen,
King, Miss Ethel,
King, James Gore,
King, Mrs. J. Howard,
King, Mrs. Leroy,
Kingsbury, Nathan C.,
Kingsland, Mrs. William M.,
Kingsley, W. M.,
Kinney, Warren,
Kinney, Mrs. Warren,
*Kinnicutt, Dr. Francis P.,
Kip, W. Ruloff,
Kirkham, William B.,
Kissam, Mrs. Maude,
Kissel, Mrs. W. Thorn,
Kittredge, Samuel Dana,
Kitz, Joseph,
Klaw, Marc,
*Klee, Benjamin,
Knapp, Arnold,
Knapp, Mrs. Harry K., Jr.,
Knapp, Mrs. Joseph Palmer,
Knight, Charles R.,
Knoedler, Roland F.,
Koehler, H. C.,
Kohlman, Charles,
Kohlsaat, Miss Edith M.,
Kolb, George C., Jr.,
Kolb, Frederick,
Koles, Dr. Henry M.,
Konta, Alexander,
Kraus, Sam,
Kremer, William N.,
Krech, Mrs. Alvin W.,
Kremer, Mrs. William N.,
Krunscheid, C. D.,
Kuempel, Max,

*Deceased.

KUHN, AUGUST,
KUHN, JULIUS,
KUNHARDT, HENRY R.,
KURZMAN, CHARLES C.,
KUSER, JOHN DRYDEN,
KUSER, JOHN L.,
KUTTROFF, ADOLF,
KUTTROFF, FREDERICK,
LACOMBE, HON. E. HENRY,
LAGAI, DR. GEORGE,
LAHENS, MRS. PHEBE P.,
LAIMBEER, JOHN, JR.,
LAMBERT, DR. ALEXANDER,
LAMBERT, DR. A. V. S.,
LAMBERT, DR. SAMUEL W.,
LAMBERT, MRS. SAMUEL W.,
LAMBORN, A. H.,
LA MONTAGUE, MISS MARIE,
LAMONT, MRS. THOMAS WILLIAM,
LANDAUER, I. N.,
LANDON, FRANCIS G.,
LANE, MISS ANNIE E.,
LANE, EDWARD V. Z.,
LANE, JAMES WARREN,
LANE, WOLCOTT G.,
LANGE, MISS CARMEN,
*LANGELOTH, J.,
LANGELOTH, MRS. JACOB,
*LANGMANN, DR. GUSTAV,
LANIER, MRS. JAMES F. D.,
LAPHAM, MRS. JOHN J.,
LAPSLEY, MISS ANNE W.,
LATTING, CHARLES P.,
*LAUDER, GEORGE, JR.,
LAUDER, MRS. GEORGE, JR..
LAUTERBACH, MRS.,
LAWRENCE, EMLEN N.,
LAWRENCE, JOHN BURLING,
LAWRENCE, JOHN L.,
LAWRENCE, NEWBOLD T.,
LAWRENCE, R. WARREN,
LAWRENCE, MRS. AMORY A.,
LAWRENCE, HIRAM V.,
LAWRENCE, TOWNSEND,
*LAWRENCE, WALTER BOWEN,
LAWRENCE, MRS. W. W.,
LAWRENCE, W. V.,
LAWTON, MRS. JAMES MARSLAND,
LEA, CHARLES M.,
LEACH, HENRY GODDARD,
*LEARNED, WALTER,
LEDLIE, GEORGE,
LEDOUX, DR. ALBERT R.,
LEDYARD, MRS. LEWIS C.,
LEE, MRS. FREDERIC S.,
LEE, GEORGE C.,
*LEE, J. BOWERS,
LEFFERTS, MARSHALL C.,
LEGG, GEORGE,
LEGGETT, WARREN F.,
LEHMAIER, JAMES M.,
LEHMAN, MEYER H.,
LELAND, WILFRED C.,
LEONHARD, J. HENRY,
LEROY, EDWARD A.,
LEVOR, G.,
LESTER, GEORGE BACON,
LETKEMANN, H. V.,
LEVER, S. H.,
LEWIS, MRS. AUGUST,
LEWIS, FREDERIC ELLIOTT,
*LEWIS, PERCY PYNE,
LEWIS, DR. WILLIAM J.,
LEWISOHN, ADOLPH,
LICHENSTEIN, OSCAR R.,
LIEB, J. W.,
LIEBER, DR. HUGO,
LINCOLN, FREDERIC W.,
LITCHFIELD, E. HUBERT,
LITCHFIELD, EDWARD H.,
LICHENSTEIN, PAUL,
LIVERMORE, MRS. JOHN R.,
LOEWI, HUGO V.,
LOEWI, DR. KARL J.,
LOGAN, FRANK J.,
LOINES, RUSSELL H.,
LOOMIS, GUY,
*LOOP, CHARLES L.,
*LORD, MRS. GEORGE DEFOREST,
LOW, ETHELBERT IDE,
LOW, WILLIAM GILMAN, JR.,
LOWELL, MISS CARLOTTA RUSSELL,
LOWELL, JAMES B.,
LOWTHER, CHRISTOPHER M.,
*LUDEKE, A.,
LUDINGTON, C. H.,
LUDLAM, MALCOLM C.,
LUDLOW, MRS. BANYER,
*LUDLOW, REAR-ADMIRAL NICOLL,
LUDLUM, C. A.,
LUEDER, A.,
LUKE, DAVID L.,
LUKE, JOHN G.,
LUSK, PROF. GRAHAM,
*LUMMIS, MISS ELIZA O. B.,
LUTTGEN, WALTHER,
LYMAN, FRANK,
LYDIG, MRS. PHILIP,
MCALPIN, MRS. CHARLES W.,
MCALPIN, MRS. D. HUNTER, JR.,
MCALPIN, GEORGE L.,
MCBRIDE, MRS. HERBERT,
*MCBURNEY, CHARLES I.,
MCCAGG, LOUIS B.,
MCCALL, RICHARD,
MCCOY, DR. JOHN,

*DECEASED

McCoy, J. C.,
McCrea, W. S.,
McCreery, Mrs. Henry Forbes,
McCulloh, J. S.,
*McCutcheon, James,
McGregor, Rev. Robert Gordon,
McKeever, J. Lawrence,
McKim, John A.,
McKim, Leroy,
McLane, Thomas S.,
McLean, James,
McLean, Marshall,
McManus, Edward F.,
*McMurtry, G.,
McNair, William,
Mac Fadden, C. K.,
Macfarlane, Wallace,
Mack, Arthur C.,
Mac Nutt, Mrs. Francis A.,
Magee, John,
Mager, F. Robert,
Main, Frank H.,
Male, Francis S.,
Mali, Pierre,
Mali, Mrs. Pierre,
Mann, William d'Alton,
Mapes, Daniel, Jr.,
Mapes, Ernest S.,
Mapes, Eugene E.,
Marckwald, Albert H.,
Markham, Robert D.,
Markoe, Harry,
Markoe, Dr. J. W.,
*Marsh, C. P.,
Marshall, A. W. W.,
Marshall, Mrs. Chauncey,
*Marshall, Charles H.,
Marsh, Charles Capron,
Marston, Edwin S.,
Martin, Bradley, Jr.,
*Martin, Howard T.,
Martin, Mrs. Shelton E.,
Martin, Dr. Walton,
*Martin, William R. H.,
Martin, Mrs. Howard Townsend,
*Martinez, Miguel R.,
Marye, R. V.,
Masten, Arthur H.,
Masters, Francis R.,
Masters, Miss,
Mather, Samuel,
Matheus, Mrs. Wilbur K.,
Mayer, Jesse,
Maxwell, George T.,
*Mayer, John,
Mayer, Mrs. Joseph B.,
Maynard, Mrs. Walter E.,
Meade, Richard W.,
Meeker, Henry E.,
Meem, James C.,
Mehl, Henry,
Meinhard, Morton H.,
Meloy, Andrew D.,
Messenger, Miss Maria Gerard,
Meyer, Eugene, Jr.,
Meyer, Dr. George W.,
Meyer, Miss Heloise,
Meyrowitz, Emil B.,
Miehling, Charles,
*Milbank, Albert J.,
Milburn, John G.,
Miller, Mrs. Elizabeth C. T.,
Miller, Mrs. Cyrus C.,
Miller, Mrs. Charles E.,
Miller, Nathan J.,
Miller, Peyton F.,
*Miller, Roswell,
Miller, W. W.,
Millet, Mrs. F. D.,
Milliken, Mrs. Gerrish H.,
Mills, Abraham G.,
Mills, Andrew,
Mills, Frederic C.,
Milmine, C. E.,
Montant, Alphonse,
Mitchell, John R.,
Montgomery, Carleton,
Moore, Mrs. Barrington,
Moore, Casimir deR.,
Moore, Mrs. Casimir deR.,
Moore, Charles Arthur, Jr.,
Moore, Miss K. T.,
*Moore, Mrs. Russell Wellman,
Moorhead, Horace R.,
Morawetz, Victor,
Morgan, Miss Anne,
Morgan, Miss C. L.,
Morgan, Edwin D.,
Morgan, Mrs. J. B.,
Morgan, Mrs. Pierpont,
Morgan, Junius S., Jr.,
Morgan, Junius S.,
Morgan, William Fellowes,
Morgan, William Forbes, Jr.,
Morris, Dave H.,
Morris, Gouverneur,
Morris, Lewis Spencer,
Morrison, N. H.,
Morse, Mrs. George H.,
*Mortimer, Richard,
Morton, Mrs. Paul,
Mosle, A. Henry,
Moss, Ernest J.,
Motley, Jas. M.,
Mott, Henry C.,
Mott, Mrs. John Bowne,

*Deceased

*Mott, John Bowne,
Moulton, Arthur J.,
Mueller, Charles F.,
Muller, Carl,
Muhlfeld, Frank J.,
Mulhall, Miss Sarah G.,
Munroe, Henry W.,
Munsey, Frank A.,
Murgatroyd, John,
Murtha, Thomas F.,
Murphy, Mrs. Felix Tone,
Myers, William S.,
*Naegeli, Robert,
Neilson, Dr. Howard S.,
Neilson, Wallace Platt,
Nelles, Hugo C.,
Nelson, James W.,
Nesmith, James,
*Neumer, Ferdinand,
Neumoegen, M. L.,
Neumoegen, Mrs. M. L.,
Neustadt, Mrs. S.,
Nichols, Acosta,
Nichols, John W. T.,
Nicoll, Benjamin,
Nickerson, Hoffman,
Nicoll, Mrs. Benjamin,
Niles, Robert L.,
*Noble, Alfred,
Nolker, Robert E.,
Norman, Mrs. Bradford,
Norrie, Miss Mary,
Norrie, Mrs. E. L. Breese,
North, George B.,
Norton, W. P.,
Notman, George,
Obermayer, Charles J.,
O'Connell, Dr. J. H.,
O'Connor, James B.,
Ochs, Adolph S.,
Oettinger, Dr. P. J.,
Offerman, John,
Ogden, Charles W.,
Ogden, J. R.,
Ogden, Miss Mary F.,
Ohmeis, John,
Ohmeis, P. M.,
Olcott, Dudley,
Olcott, Dudley, 2nd,
Olcott, E. E.,
Olin, Mrs. Stephen H.,
Olney, Elam Ward,
Olyphant, Robert,
Onativia, J. Victor,
*Opdycke, Leonard E.,
Openhym, George J.,
Oppenheimer, Dr. Henry S.,
Oppenheimer, David E.,
Ordway, Samuel H.,
Orth, Charles D.,
Osborn, Mrs. Henry Fairfield,
Ottinger, Marx,
Outerbridge, Mrs. Adolph J.,
Outerbridge, Dr. Paul,
*Owen, Henry E.,
Packard, Mrs. E. Winslow,
Page, William H.,
Paine, Mrs. Augustus G.,
Painter, Dr. H. McM.,
Palmer, Edgar,
*Palmer, S. S.,
Palmer, Dr. T. S.,
Parish, Wainwright,
Parish, Mrs. Edward C.,
Parker, A. W.,
Parker, Edward Ludlow,
Parker, Junius,
Parker, Winthrop,
Parpart, William E.,
Parsons, Edwin,
*Parsons, Mrs. Edwin,
Parsons, Miss Gertrude,
Parsons, Herbert,
*Parsons, John E.,
Parsons, Mrs. John E.,
Parsons, Miss Mary,
Parsons, William Barclay,
Partridge, Edward L.,
Paton, David,
Patterson, Henry Stuart,
Patterson, T. H. Hoge,
Payne, Mrs. Henry W.,
Peabody, Stephen,
*Pearson, F. S.,
Pearson, Mrs. Frederick,
Peck, Charles E.,
Peck, Leicester O.,
Peckham, Miss Marie Louise,
Pegram, Edward S.,
Pendleton, Francis Key,
Penfold, Edmund,
*Penfold, William Hall,
Penrose, Dr. Charles B.,
Percival, L. A. D.,
*Perkins, Mrs. Edward,
Perkins, Robert P.,
Perry, Mrs. William A.,
*Perry, William A.,
Peters, Mrs. Charles G.,
Peters, William Richmond,
Pfeiffer, Curt G.,
Pfeiffer, George,
Phelps, Mrs. Ansel,
Phelps, Dr. Governeur M.,
Piatti, Dr. Virgil C.,
Pickhardt, Carl,

*Deceased

Piel, Gottfried,
Piel, Michael,
Pierrepont, Miss Anna Jay,
Pierrepont, R. Stuyvesant,
Pierson Gen J. Fred,
*Pike, R. W.,
Pillot, P Stuyvesant,
Pinchot, Gifford,
Pitney, Mrs. J. O. H.,
Platt, Charles H.,
Platt, Frank H.,
Platt, Henry B.,
Platt, Livingston,
Platten J W
*Plaut Albert
Polk, Dr. William M.,
Pollock, George F.,
Pomeroy Daniel E.,
Pomroy Mrs. H. K.,
Pond, Miss Florence I.,
Poor, Henry V.,
Pope, G. D.,
Porter, Alexander J.,
Porter, Horace,
Porter, Louis H.,
Porter, William I.,
Post, Abram S.,
Post, Mrs. Charles Alfred,
Post, George B.,
*Post, Edward C.,
Post, William H.,
Potter, Miss Blanche,
Potter, Edward Clarkson,
Potter, Frederick,
Potter, James Brown,
Potter, Orlando B.,
Potter, R. Burnside,
Potter, Mrs. R. Burnside,
Potter, Fuller,
*Potts, Jesse W.,
Potts, William Brevoort,
Pratt, Albert H.,
Pratt, George D.,
Pratt, H. L.,
Pratt, John T.,
Pratt, Mrs. John T.,
Pratt, Samuel,
Prentice, John Hill,
Prentiss, Miss Henrietta,
*Prentiss, George H.,
Press, T. Cannon,
Preston, Veryl,
Priddy, Lawrence,
Prime, Miss Cornelia,
Prince, Edward S.,
Procter, William,
Proctor, Mrs. Charles E.,
Proctor, Mrs. Maria W. W.,
Proctor, Thomas R.,
Proctor, Wm. Ross,
Provost, Mrs. Cornelius W.,
*Pryer, Charles,
Pulitzer, Mrs. Joseph,
Pulsifer, Mrs. N. T.,
*Putnam, J. Bishop,
Pyle, D. H. McAlpin,
*Pyle, James Tolman
Pyle, Mrs. James Tolman,
Pyne, Mrs. M. Taylor,
Quincy, Charles F.,
Quintard, Dr. Edward,
*Radford, Harry V.,
*Randall, Frank E.,
Randolph, Edmund D.,
Randolph, William W.,
Ranft, Richard,
Ranger, Stanley,
*Rascovar, James,
Rasmus, W. T.,
Rasmus, W.,
Rathborne, Richard C.,
Rauch, William,
Raymond, H. E.,
*Read, William A.,
Read, Mrs. William A.,
Redmond, Miss E.,
Redmond, Mrs. Henry S.,
Reeds, Chester A.,
Reeves, Mark W.,
Reid, John,
Reid, Ogden Mills,
Reid, Mrs. Ogden Mills,
Reid, Wallace,
*Reincke, E. A.,
Reinhardt, George N.,
Reisinger, Curt H.,
Remsen Charles,
Renshaw, Howard Price,
Reynolds, E. B.,
Rhett, Miss Florence,
*Rhinelander, Charles E.,
Rhinelander, Philip,
Richard, Miss Elvine,
Richard, O. I.,
Richard, Edwin A.,
Richards, Charles A.,
Richards, Eben,
Richards, E. O.,
Richardson, Mrs. C. Tiffany,
Richardson, Mrs. D. E.,
*Ridder, Herman,
Riggs, Geo. C.,
*Riker, Samuel,
*Ripley, H. Dillon,
Ripley, Julien A.,
Rippe, Mrs. E. J.,

*Deceased

ROBBINS, CHANDLER,
ROBBINS, MRS. HELEN C.,
ROBERTS, G. THEODORE,
ROBERTS, MISS GRACE VAN BRAAM,
ROBERTS, MISS M. M.,
ROBERTS, OWEN F.,
*ROBERTSON, MRS. FANNY P.,
ROBERTSON, ALBERT,
*ROBERTSON, JULIUS,
ROBERTSON, R. H.,
ROBINSON, MRS. DOUGLAS,
ROBINSON, EDWARD,
*ROBINSON, ELI K.,
ROBINSON, G. H.,
ROBINSON, MISS PAULINE,
ROBISON WILLIAM
ROCHE, MRS. BURKE,
ROCKEFELLER, MRS. WILLIAM G.,
ROCKEFELLER, MRS. J. D., JR.,
ROCKWOOD, WILLIAM H.,
RODEWALD, F. L.,
ROE, CHARLES F.,
ROE, FRANK O.,
ROE, IRVING L.,
*ROELKER, ALFRED,
ROGERS, E. L.,
ROGERS, MRS. FRANCIS,
ROGERS, HUBERT E.,
ROGERS, MRS. WILLIAM BEVERLEY,
ROKENBAUGH, HENRY S.,
ROLLE, AUGUSTUS J.,
ROLLINS, FRANK S.,
ROMBOUGH, JOHN B.,
ROOF, CLARENCE M.,
ROOSEVELT, MRS. JAMES,
ROOSEVELT, MRS. HILBORNE L.,
ROOSEVELT, W. EMLEN,
ROOT, ELIHU,
ROSE, MRS. A. SUMNER,
ROTH, FREDERICK G. R.,
ROTH, J. E.,
ROTHBARTH, ALBERT,
ROTHLAUF, REV. ANTHONY J.,
ROTHWELL, JAMES E.,
ROWLAND, THOMAS,
RUHE, LOUIS,
RUHL, LOUIS,
RUMSEY, MRS. CHARLES CARY,
RUNYON, CARMAN R.,
RUNYON, E. W.,
RUPERTI, JUSTUS,
*RUPPERT, JACOB,
RUPPERT, MRS. JACOB,
RUSSELL, ARCHIBALD, D.,
RUSSELL, MRS. HORACE,
RUSSELL, DR. JOHN F.,
*RYAN, J. D.,
RYAN, JOHN BARRY,
RYAN, MRS. THOMAS F.,
RYLE, ARTHUR,
RYLE, GRAHAM,
SACHS, ARTHUR,
SAGE, JOHN H.,
SAMPSON, ALDEN,
SAMPSON, CHARLES E.,
SANDS, MISS ANNE A.,
*SANDS, BENJAMIN AYMAR,
SANDS, MRS. BENJAMIN AYMAR,
SANGER, MRS. RALPH,
SARG, F. A.,
SARGENT, HENRY B.,
SARGENT, GEORGE LLOYD,
SATTERLEE, MRS. H. L.,
SATTERWHITE, PRESTON P.,
SAUTER, FREDERICK,
SAUTER, FRED, JR.,
SCHAEFER, ANDREAS F.,
SCHAEFER, EDWARD C.,
SCHAEFER, HENRY,
SCHALL, W.,
SCHANK, GEORGE E.,
SCHAUE, C. F.,
SCHAUFFLER, DR. A. F.
SCHAUFFLER, MRS. A. F.,
SCHEFER, ANTON H.,
*SCHEFER, CARL,
SCHENCK, HENRY DEB.,
SCHIEFFELIN, MRS. H. M.,
SCHIEFFELIN, WILLIAM JAY,
SCHIMMEL, SIEGFRIED,
SCHIRMER, MRS. MARTHA B.,
SCHIRMER, RUDOLPH E.,
SCHLICKER, CARL P.,
SCHMELZEL, MISS JANE E.,
SCHMELZEL, JAMES H.,
*SCHMIDT, F. LEOPOLD,
SCHMIDT, WILLIAM P.,
SCHMIDT, WILLIAM H.,
SCHMIDT, FEDOR,
SCHNABEL, R. A.,
SCHNAKENBERG, D.,
*SCHNIEWIND, F.,
SCHNIEWIND, H., JR.,
SCHOLLE, A. H.,
SCHRAG, CHARLES A.,
SCHRAG, LOUIS,
*SCHREYVOGEL, CHARLES,
SCHREITER, HENRY,
SCHUYLER, MISS LOUISA LEE,
*SCHWAREZ, MAX M.,
SCHWARTZ, LEWIS F.,
SCHWARZ, HERBERT F.,
SCHWARZ, HENRY F.,
SCHWARZLER, ALBERT J.,
SCOFIELD, MISS MARION,
SCOTT, DONALD,

*DECEASED

Scott, Hon. Francis M.,
Scott, Mrs. Frank H.,
*Scott, Frank H.,
Scott, Thomas Blythe,
Scott, William,
Scoville, Herbert,
Scoville, Robert,
Scribner, Arthur H.,
Scribner, Charles,
Scribner, Mrs. Charles,
Scrymser, Mrs. James A.,
Seaman, Dr. Louis L.,
Sedgwick, Robert,
See, A. B.,
Seidenberg, Otto,
*Seligman, Alfred I.,
Seligman, George W.,
Seligman, Jefferson,
Seligman, Joseph L.,
Seligman, A. J.,
Senff, Mrs. Charles H.,
Seton, Alfred,
Sexton, Lawrence E.,
*Shardlow, Mrs. Joseph,
Shattuck, A. R.,
Sheets, Dr. E. A.,
Sheehan, William F.,
Sheehan, Mrs. William F.,
Sheffield, James R.,
Sheffield, Mrs. James R.,
Sheldon, Edward W.,
Sheldon, George R.,
Sheldon, William C.,
Shepard, Dr. George A.,
*Shepard, Augustus D.,
Shepard, Finley J.,
Shepard, Mrs. Elliott F.,
Shepard, Annie R.,
Shipman, Richard D.,
Shipway, Samuel W.,
Shoemaker, Henry W.,
Shonnard, Horatio S.,
Shonts, T. P.,
Shulhof, Otto B.,
*Shurtleff, Roswell Morse,
Sibley, Mrs. H. W.,
Siedenburg, Reinhard, Jr.,
Siegel, Jacob,
Siegel, William,
Silleck, Henry G., Jr.,
Silleck, Mrs. Henry G., Jr.,
Silliman, James R.,
Silliman, Harper,
Simall, Alfred L.,
Simon, Robert E.,
Simpson, John W.,
Simpson, Ernest L.,
Sinclair, Mrs. John,
Sinclair, Mrs. William,
Singer, Arthur J.,
Skeel, Dr. Frank D.,
*Skidmore, William L.,
Skinner, M. P.,
Slade, Francis Louis,
Slaughter, R. B.,
Slaven, Ralph E.,
Sloan, Mrs. Samuel,
Slocum, H. J., Jr.,
Slocum, J. J.,
Slocum, Thomas W.,
Smidt, Thomas,
Smiley, Daniel,
*Smillie, Charles F.,
Smillie, James C.,
Smillie, Ralph,
*Smith, Dr. A. Alexander,
Smith, Augustine J.,
Smith, Mrs. Charles S.,
Smith, Elias D.,
*Smith, Nathaniel S.,
Smith, Pierre J.,
Smith, Robert K.,
*Smith, William Alexander,
Smith, Geo. Stuart,
Smithers, Charles,
Smithers, F. S.,
Snow, E. G.,
Snyder, Valentine P.,
Soldwedel, Frederick A.,
Sondheim, Pheinas,
Sorchan, Mrs. Victor,
Soule, Louis H.,
Spalding, Keith,
Spalding, N. Boardman,
Sparrow, Mrs. Edward W.,
Sonto, Baldomere,
Spear, James, Jr.,
Spedden, Frederic O.,
Spencer, Mrs. Edwards,
Spencer, Alexander H.,
*Spencer, Edwards,
*Spencer, Lorillard,
Sperry, William M.,
Speyer, Mrs. James,
Spitzner, George W.,
Spofford, Mrs. J. L.,
Sprague, Mrs. Frank J.,
Sprigg, Judge Carroll,
Spring, Miss Anna Riker,
Spurr, E. W.,
Squibb, Dr. Edward H.,
Squire, Eben H. P.,
Stafford, William Frederick,
Stafford, Mrs. William Frederick,
Stahl, Adolfo,
*Standish, Myles,

*Deceased

STALLFORTH, F.,
STANTON, FRANK MCMILLAN,
STANTON, JOHN R.,
STAPLES, MRS. JOHN J.,
STARR, LOUIS MORRIS,
STEARNS, LOUIS,
*STEBBINS, JAMES H.,
STEELE, CHARLES,
STEELE, MRS. CHARLES,
STEERS, J. RICH,
STEIN, MRS. ALEXIS W.,
STEINECK, EDWARD,
STEINMETZ, JOHN A.,
STEPHENS, OLIN J.,
STEPHENS, RODERICK,
STERN, BENJAMIN,
STEVENS, ALEXANDER H.,
STEVENS, FREDERIC W.,
STEVENS, OSCAR E.,
STEVENS, RICHARD,
STEVENS, MRS. RICHARD,
STEWART, CECIL P.,
STEWART, ELWIN K.,
STEWART, WILLIAM R.,
STICKELS, EDWARD H.,
STILLMAN, CHAUNCEY,
STILLMAN, MRS. C. C.,
STILLMAN, JOSEPH F.,
STILLMAN, JAMES A.,
STIMPSON, EDWIN B.,
STIMSON, DR. DANIEL M.,
*STOKES, H. B.,
STONE, MISS ANNIE,
STONE, CHARLES A.,
STONE, MISS ELLEN J.,
STOUT, JOSEPH S.,
STOUT, ANDREW V.,
STOW, GEORGE G.,
STRAIGHT, WILLARD,
STRANGE, A. B.,
STRAUS, H. GRANT,
STRAUS, MRS. NATHAN, JR.,
STRAUS. PERCY S.,
STRAUSS, ALBERT,
STRAUSS, FREDERICK,
STRAUSS, CHARLES,
STRAUSS, MARTIN,
STREAT, JAMES,
STREET, W. A.,
STROHMEYER, F. G.,
STRONG, BENJAMIN, JR.,
STRONG, RICHARD A.,
STROOCK, JOSEPH,
STROOCK, LOUIS S.,
STUART, ROBERT,
STURGES, HENRY C.,
SUCKLEY, MRS. R. B.,
SULLIVAN, MRS. JAMES,
SUTRO, LIONEL,
SUYDAM, LAMBERT,
SWAN, MRS. J. ANDREWS,
SWAN, JAMES A.,
SWANSON, DR. F. J.,
SWANZY, MRS. FRANCIS MILLS,
SWAYNE, MRS. FRANCIS B.,
SWENSON, S. A.,
SWORDS, WILLIAM VOORHIS,
TABER, MISS MARY,
TABOR, F. H.,
TAFT, HENRY W.,
TAFT, WILLIAM HOWARD,
TAG, ALBERT,
*TAILER, EDWARD N.,
TAKAMINE, JOKICHI, JR.,
*TALCOTT, JAMES,
TALCOTT, MRS. JAMES,
TALMAGE, MRS. E. T. H.,
TANENBAUM, MOSES,
TATHAM, CHARLES,
*TATUM, A. H.,
TAUSSIG, NOAH W.,
TAYLOR, MRS. HENRY OSBORN,
TAYLOR, HENRY R.,
TAYLOR, JAMES B.,
TAYLOR, LLOYD,
TAYLOR, MOSES,
TAYLOR, WILLIAM R. K.,
TAYLOR, ROBERT C.,
TAYLOR, WILLIAM A.,
TENNEY, C. H.,
TENNEY, DANIEL G.,
TERRY, MRS. JOHN T.,
*TERRY, JOHN T.,
TERRY, RODERICK, JR.,
TERRY, WYLLYS,
THACHER, ARCHIBALD G.,
THACHER, MRS. GEORGE W.,
THACHER, THOMAS,
THAW, J. C.,
THAYER, HARRY BATES,
THOMAS, MRS.HOWARD I.,
THOMAS, SETH E., JR.,
THOMPSON, ARTHUR G.,
THOMPSON, FFARRINGTON M.,
THOMPSON, LA MARCUS A.,
THOMPSON, MRS. J. TODHUNTER,
THOMPSON, WILLIAM BOYCE,
THOMSON, GIRAUD F.,
THORLEY, CHARLES,
THORNE, MRS. EDWIN,
THORNE, CHAS. STOCKTON,
THORNE, JONATHAN,
THORNE, MRS. JONATHAN,
*THORNE, NEWBERRY D.,
THORNE, MRS. W. V. S.,
*THORP, W. EDWIN,

*DECEASED.

THURBER, H. F.,
THURSBY, SIDNEY,
TIEDEMANN, THEODORE,
TIERS, MRS. ALEXANDER H.,
TIFFANY, LOUIS C.,
TILFORD, MRS. HENRY MORGAN,
TILT, ALBERT,
TILTON, JOSEPH W.,
*TIMKEN, J. HENRY,
TIMMERMANN, HENRY G.,
TIMOLAT, JAMES G.,
TIMPSON, JAMES,
*TJADER, RICHARD,
TOD, J. KENNEDY,
*TODD, H. H.,
TODD, M. PARSONS,
TODD, WALTER B.,
TODD, JOHN R.,
TOMBY, BORGFELDT,
TONNELE, MRS. JOHN N.,
*TOUSEY, WILLIAM,
TOWNES, M. G.,
TOWNSEND, MISS AMY C.,
TOWNSEND, MRS. E. M.,
TOWNSEND, EDWIN S.,
TOWNSEND, H. N.,
TOWNSEND, HOWARD,
TOWNSEND, MRS. JAMES M.,
TOWNSEND, ISAAC,
TOWNSEND, JAMES B.,
*TOWNSEND, JOHN,
TRENCH, CHARLES S.,
TRIMBLE, MRS. RICHARD,
TROESCHER, A. F.,
TROWBRIDGE, FREDERICK K.,
TUCKER, MRS. AGNES J.,
TUCKER, CARL,
TUCKERMAN, ALFRED,
TUCKERMAN, PAUL,
TURNBULL, ARTHUR,
TURNBULL, MRS. RAMSAY,
TURNBULL, WILLIAM,
TURNURE, GEORGE E.,
TUSKA, BENJAMIN,
*TUTTLE, DR. G. M.,
*TWEDELL, WILLIAM H.,
TWEED, MRS. CHARLES H.,
TWINING, E. S.,
UHL, OSWALD W.,
UPMANN, CARL,
VALENTINE, MRS. PATRICK A.,
VALENTINE, DR. WILLIAM A.,
VAN BEUREN, FREDERICK T., JR.,
VAN CORTLANDT, AUGUSTUS,
*VAN CORTLANDT, AUGUSTUS,
VAN COTT, HARVEY A.,
VANDERGRIFT, S. H.,
VANDERPOEL, AMBROSE E.,
VANDERPOEL, MRS. JOHN A.,
VANDERLIP, FRANK A.,
VAN DER SMISSEN, DR. G. J.,
*VAN EMBURGH, D. B.,
VAN GERBIG, BAREND,
VAN INGEN, MRS. EDWARD,
VAN INGEN, MRS. E. H.,
VAN NORDEN, OTTOMAR H.,
VAN NOSTRAND, B. T.,
VAN SINDEREN, HOWARD,
VAN SLYCK, GEORGE W.,
VAN WINKLE, EDGAR B.,
VARIAN, WILBUR I.,
VELTEN, WILLIAM F.,
VERNAY, ARTHUR S.,
VERNON, MRS. CATHERINE D.,
VESPER, KARL H.,
VIETOR, THOMAS F.,
VILLA, ALFONSO P.,
*VINCENT, FRANK,
VIRGIN, DR. FREDERIC O.,
VOGEL, HERMAN,
VOIGHT, WILLIAM L.,
VON BERNUTH, FREDERICK A.,
VON GONTARD, MRS. ALEXANDER,
VON LENGERKE, JUSTUS,
VON ZEDLITZ, MRS. ANNA M.,
VUILLEUMIER, DR. JULES A.,
WAGNER, CHARLES H.,
WAGSTAFF, MRS. ALFRED,
WAGSTAFF, C. DUBOIS,
*WAINWRIGHT, J. HOWARD,
WAINWRIGHT, MRS. J. HOWARD,
WAKELEE, JUSTUS I.,
WALBRIDGE, HENRY D.,
WALCOTT, FREDERIC C.,
WALDO, R.,
WALES, EDWARD H.,
WALKER, E. R.,
WALKER, JOSEPH, JR.,
WALKER, BRYANT,
WALKER, DR. JOHN B.,
WALKER, GUSTAVUS A.,
*WALLER, ROBERT, JR.,
WALLER, STEWART,
WALLERSTEIN, DR. MAX,
WALSH, SAMUEL A.,
WALTER, EDGAR,
WALTER, MARTIN,
WALTER, WILLIAM I.,
WALTY, A. R.,
WARBURG, PAUL M.,
WARD, ARTEMAS,
*WARD, HENRY C.,
WARDNER, HENRY STEELE,
WARDWELL, ALLEN,
WARREN, MRS. J. HOBART,
WARREN, LLOYD,

*DECEASED

WASHBURN, THOMAS G.,
WASHBURN, WM. IVES,
WATERBURY, JOHN I.,
WATERBURY, MISS,
WATRISS, MRS. HELEN B.,
WATSON, MRS. J. HENRY,
WATSON, CHARLES F.,
WATSON, THOMAS J.,
*WATSON, REV. J. HENRY,
WATT, THOMAS L.,
*WEATHERBEE, EDWIN H.,
WEATHERBEE, MRS. EDWIN H.,
WEBB, MRS. ALEXANDER S.,
WEBB, F. EGERTON,
WEBB, J. GRISWOLD,
WEBB, MRS. VANDERBILT,
WEBB, MRS. WILLIAM SEWARD,
*WEBER, DR. LEONARD,
WEEKS, JOHN E.,
WEEKS, JAMES,
WEIGLE, CHARLES H.,
WEILER, MRS. JULIA O.,
WEINIG, BERNARD,
WEISS, JULIUS,
WEITLING, WILLIAM W.,
WELCH, HENRY K. M.,
WELCH, MRS. S. CHARLES,
WELLS, MRS. JOHN,
WELLS, OLIVER J.,
*WENDELL, MRS. JACOB,
WESSEL, J. HENRY,
WESSELL, ARTHUR L.,
WEST, DR. WILLIAM,
WESTOVER, M. F.,
WHARTON, MISS N. C.,
WHEELER, WALTER S.,
WHEELOCK, MRS. G. G.,
WHEELOCK, WM. H.,
WHITE, A. M.,
WHITE, HAROLD T.,
*WHITE, HORACE,
WHITE, LEONARD D.,
WHITE, MRS. STANFORD,
WHITEHOUSE, J. HENRY,
WHITEHOUSE, NORMAN,
WHITEHOUSE, WILLIAM F.,
WHITING, DR. CHARLES A.,
WHITING, MISS GERTRUDE,
WHITMAN, CLARENCE,
WHITMAN, WILLIAM, JR.,
WHITNEY, RICHARD,
*WHITRIDGE, F. W.,
WIBORG, F. B.,
WICKERSHAM, GEORGE W.,
WIGGLESWORTH, HENRY,
WILKINS, F. H.,
WILLCOX, WILLIAM G.,
*WILLETS, JOHN T.,
WILLIAMS, ALEX S.,
WILLIAMS, ARTHUR,
WILLIAMS, C. S.,
WILLIAMS, CLARENCE E.,
*WILLIAMS, MRS. G. G.,
WILLIAMS, GEORGE L.,
WILLIAMS, MRS. PERCY H.,
WILLIAMS, RICHARD H., JR.,
WILLIAMS, WILLIAM,
WILLIAMS, WILLIAM H.,
WILLIAMSON, MRS. BUTLER,
WILLIS, W. P.,
WILLISTON, JAMES R.,
*WILLS, CHARLES T.,
WILSON, JAMES GODFREY,
WILSON, M. ORME,
WINGATE, GEORGE W.,
WINTER, EMIL,
WINTER, JULIUS,
WINTHROP, EGERTON L., JR.,
*WINTHROP, ROBERT DUDLEY,
WISNER, CHARLES,
*WITHERBEE, FRANK S.,
WITHERBEE, MRS. FRANK S.,
*WITTHAUS, DR. RUDOLPH A.,
WITTMAN, JOSEPH,
WOOD, ARNOLD,
WOOD, GILBERT CONGDON,
WOOD, J. WALTER,
WOOD, WILLIAM CONGDON,
*WOODHOUSE, J. S.,
WOODHOUSE COMPANY, J. S.,
WOODRUFF, ALBERT C.,
WOODWARD, KENNETH N.,
WOODWARD, MRS. WILLIAM,
*WOODWARD, ROBERT B.,
*WOODWARD, MRS. WILLIAM, SR.,
WOOLEY, C. M.,
WORCESTER, WILFRED J.,
WORK, BERTRAM G.,
*WORK, J. HENRY,
*WORRALL, P. B.,
WORTLEY, R. M. STUART,
*WRIGHT, JOHN HOWARD,
WRIGHTSMAN, C. J.,
WYCKOFF, DR. PETER BROWN,
WYCKOFF, MRS. PETER BROWN,
YOUNG, A. MURRAY,
YOUNG, MRS. A. MURRAY,
*ZABRISKIE, ANDREW C.,
ZENTGRAF, REV. GEORGE J.,
ZINN, GEORGE,
*ZINSSER, AUGUST,
*ZINSSER, MRS. AUGUST,
ZINSSER, AUGUST,
ZOLLER, CHARLES,

*DECEASED

Corresponding Members

DELACOUR, LIEUT. JEAN,
GILFEDDER, T. P.,
GILLESPIE, T. H.,
JOHNSTON, SIR HARRY H.,
LESOUEF, W. H. DUDLEY,
MILLWARD, RUSSELL HASTINGS,
STURTEVANT, LIEUT. C. G.,
TYRWHITT-DRAKE, G.

Ladies' Auxiliary

April, 1919.

CLARK, MRS. GEORGE C.,
CLARK, MRS. J. F. A.,
CUYLER, MISS,
FIELD, MRS. WM. B. OSGOOD,
GRANT, MRS. DE FOREST,
HAMILTON, MRS. WM. P.,
HARRIMAN, MRS. J. BORDEN,
HASTINGS, MRS. THOMAS,
HOYT, MRS. HENRY R.,
HYDE, MRS. WM. H.,
ISELIN, MRS. ARTHUR,
MARBURY, MISS,
MARTIN, MRS. SHELTON,
MAYNARD, MRS. WALTER E.,
MORGAN, MISS ANNE,
MORGAN, MRS. J. PIERPONT,
NILES, MRS. WM. WHITE,
OLIN, MRS. STEPHEN H.,
PARSONS, MISS,
OSBORN, MRS. H. FAIRFIELD,
PYNE, MRS. PERCY R.,
RHETT, MISS,
ROBINSON, MISS PAULINE,
ROCKEFELLER, MRS. WM., JR.,
SANGER, MRS. RALPH,
SHEPARD, MRS. FINLEY J.,
SPEYER, MRS. JAMES,
STEVENS, MRS. RICHARD,
THORNE, MRS. WM. V. S.,
TILFORD, MRS. HENRY M.,
TOWNSEND, MISS,
TOWNSEND, MRS. E. M.,
TRIMBLE, MRS. RICHARD,
WEBB, MRS. ALEXANDER S.,

Summary of Membership

Benefactors	7
Founders in Perpetuity	18
Founders	15
Associate Founders	9
Patrons	32
Life Members	313
Fellows	35
Annual Members	1,872
Honorary and Corresponding Members	14
Ladies' Auxiliary	34
	2,349

Qualification for Regular Membership

Annual Members	$ 10	Associate Founders	$ 2,500
Life Members	200	Founders	5,000
Patrons	1,000	Founders in Perpetuity	10,000
		Benefactors	$25,000

Form of Request

I do hereby give and bequeath to the "NEW YORK ZOOLOGICAL SOCIETY," *of the City of New York,*.....

.....

.....

Photo. by Elwin R. Sanborn

ALASKAN BROWN BEAR

This fine member of the Alaskan Brown Bear group came from the Kobuk River 300 miles northeast of Nome, in 1909

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REPORT OF

THE EXECUTIVE COMMITTEE

TO THE BOARD OF MANAGERS.

THE Executive Committee respectfully submit the following report to the Board of Managers for the year 1918:

It is with regret that the Committee announce the death of Major William Austin Wadsworth, on May 2, 1918. Major Wadsworth represented the Boone and Crockett Club on the Board, which was instrumental in the original organization of the Society. He was, for many years, a most zealous attendant at our meetings and was greatly interested in the welfare and development of the Park.

The resolution passed on the occasion of his death appears at the end of this report.

During the year Mr. Percy A. Rockefeller was elected to fill the vacancy in the Class of 1920 caused by the death of the late Grant B. Schley; and

Mr. Edwin Thorne was elected to the Class of 1920 to fill the vacancy caused by the death of the late Col. William C. Church.

Mr. Beekman Winthrop was elected to the Class of 1920 to fill the vacancy caused by the death of the late Major W. Austin Wadsworth.

MEMBERS.

Owing to war conditions, no systematic effort was made during the year to enlarge the membership of the Society. However, in the regular course, 5 Life Members and 80 Annual Members were elected. After deducting resignations and deaths, the net result is a loss of 27 members.

The membership of the Society, as of December 31, 1918, is as follows:

Benefactors	7
Founders in Perpetuity	18
Founders	15
Associate Founders	9
Patrons	32
Life Members	306
Annual Members	1,849
Fellows	35
Honorary Members	7
Corresponding Members	8
Total	2,286

ATTENDANCE.

The general war conditions during 1918 and the influenza epidemic were largely responsible for a slight decrease in the attendance at the Zoological Park.

The Aquarium also has continued to feel the loss of the attendance which naturally resulted from the use of Battery Park while shipping along the waterfront was active, and while visitors to Ellis Island were numerous.

The piles of material in Battery Park for construction and excavations of the subway having been removed, the Aquarium is now more accessible and your Committee expect the attendance will be normal in the immediate future.

The actual figures of attendance for 1918 are as follows:

	Park	Aquarium
1918	1,770,437	1,450,609
1917	1,898,414	1,595,118

COLLECTIONS AT THE PARK.

A census of the animals in the Zoological Park, compiled December 31, 1918, is as follows:

	December 31, 1917		December 31, 1918	
	Species	*Specimens*	*Species*	*Specimens*
Mammals	205	611	167	567
Birds	813	2,799	736	2,406
Reptiles and Amphibians	112	644	95	477
	1,130	4,054	998	3,450

The Park has lost during the year, chiefly from old age, several valuable specimens. The most important were, an Indian rhinoceros, a mountain zebra, a Bactrian camel, a white-tailed gnu, a Rocky Mountain goat and several kangaroos.

Owing to the prohibition by the War Trade Board of importation of animals, large or small, into the United States the acquisitions have not quite kept pace with the losses. Moreover, owing to the food shortage, no special effort was made to increase the collections. With the return of normal times these conditions will be speedily remedied. The most noteworthy accessions of the year were three camels, a mountain goat, an exceptionally fine chimpanzee, a rare entellus monkey and many birds.

COLLECTIONS AT THE AQUARIUM.

A census of the exhibits at the Aquarium taken December 31, 1918, shows the following results:

	December 31, 1917		December 31, 1918	
	Species	*Specimens*	*Species*	*Specimens*
Fishes	137	4,611	113	2,628
Reptiles	21	112	15	96
Amphibians	8	69	9	105
Invertebrates	18	1,255	17	1,094
Mammals	2	2	2	2
	186	6,049	156	3,925

The Aquarium has suffered, like the Park, from our inability to transport specimens with the result that we are without our customary tropical collections.

The collection of fresh-water fishes was difficult on account of conditions resulting from the war, chiefly as regards transportation by rail. The same is true in the case of local marine fishes. The operations of local fishermen and the movement of small boats in local waters were restricted. The collecting of tropical fishes also was hampered by war conditions and one of the customary shipments from Florida was omitted.

A reduction in the number of employees and, later, illness from influenza, served further to retard the work of collecting specimens.

As Aquarium specimens are never to be found in the live animal market, any interruption of field work necessarily results in decreased exhibits. The Aquarium has been provided with a well-smack for use in the neighboring waters for field work.

ALTERATIONS TO AQUARIUM.

Owing to the financial stringency due to the war and to the approaching debt limit of New York City, the Society did not urge on the administration the alterations needed in order to provide more exhibition space and administration room, the cost of which had been estimated before the war at about $100,000.

However, the Committee asked that repairs be made to the roof now in a very leaky and dangerous condition and this work is now under way.

COAL.

The Society was fortunate in securing a sufficient supply of coal for the Park during the severe winter of 1918. The coal situation at the Aquarium was critical several times owing to our lack of storage facilities. A new coal-bunker, however, has been erected and filled, thus providing the Aquarium with a reasonable amount of reserve supply in case of another coal shortage.

MAINTENANCE.

Park.—The sum of $207,586 provided by the City for the maintenance of the Zoological Park in 1918 was scarcely adequate for the proper maintenance of the Park owing to the enormous increase in the cost of supplies of all kinds and the need of a small increase in the pay of our low-paid men. It was only by the strictest economy that the year was closed without a deficit. That this result was at all possible was entirely due to the energy, hard work and loyalty of the officers and staff of the Zoological Park.

Aquarium.—The sum of $48,632.50 provided by the City for the maintenance of the Aquarium was barely sufficient to keep that institution open and its exhibits in proper condition and to provide a small increase in salaries for the lowest paid employees.

The maintenance situation for 1919, for the first time in the history of the Society, is really serious. The contract with the City provides, in the case of the Park, for adequate "maintenance" and, in the case of the Aquarium, for a minimum of $45,000.

It proved to be the policy of the new administration in the autumn of 1918 to reduce the maintenance of quasi-official institutions. The Aquarium was reduced from $48,632.50 to the minimum allowed by law, $45,000. The Park was, first, reduced from $207,586 to $175,000 but, after a further presentation of the needs of the institution, this amount was increased to $190,000. At the same time, however, there was coupled with this increase the condition that the salaries at the Park be increased by $100 each in the case of those receiving less than $1,800.

To provide for this increase in pay and for the increased cost of supplies would have required a total sum of $227,000; leaving a deficit to be met by the Society of $37,000. It being entirely out of the question for the Society to attempt to raise such an amount under existing financial conditions, every possible economy and reduction were made, both in the Aquarium and the Park, with the result that the working forces of both institutions were reduced to a point where the sum of $18,000 if supplied by the Society, in addition to the funds provided by the City, would keep the Park and Aquarium open to the public.

The Committee are engaged at the present moment in an attempt to raise this amount in the form of a special maintenance appropriation and the subscribers, to date, to this fund are as follows:

Andrew Carnegie	$1,000
George F. Baker	1,000
Archer M. Huntington	1,000
A. Barton Hepburn	1,000
Emerson McMillin	1,000
Cleveland H. Dodge	1,000
Edward S. Harkness	1,000
Ogden Mills	1,000
George J. Gould	1,000
Archer M. Huntington (extra)	1,000
Henry M. Tilford	500
Lewis R. Morris	500
William Woodward	200

FINANCES.

Sage Bequest.—During the year the Society received its first large bequest from the Estate of the late Mrs. Russell Sage. The precise amount of the legacy which consists of 1/52nd part of the residuary estate is undetermined. It is stated in the press to be in the neighborhood of $800,000.

The present inheritance law, which, as it now stands, falls most severely upon scientific, educational and religious institutions, will reduce this amount very greatly so that the net amount received by the Society will be about $500,000. This law, however, will be modified or repealed in all probability.

While your Committee for the first time feel relieved on the score of future responsibilities after 1919, no portion of this sum will be available and no reliance is placed upon income from this very handsome bequest during the current year.

Balances to the credit of the several funds in the Farmers' Loan & Trust Company, as of December 31, 1918, are as follows:

Income Account	$10,877.24
Animal Fund	29,684.26
Stokes Bird Fund	458.54
Cadwalader Animal Fund	1,775.00
Tropical Research Fund:	
409.19, balance for 1918	
4,000.00, subscriptions, 1919	4,409.19
National Collection Heads & Horns	107.16
Heads & Horns Building Fund	5.55
Wild Life Fund	930.07
Art Gallery Fund	7,421.68
Publication Fund	1,597.53
Pheasant Aviary Fund	93.21
Library Fund	209.48
Special Maintenance Fund, 1919	5,700.00
Total	$63,268.91
Improvements and Repairs	6,221.50
Carnegie Pension Fund Income Account:	
Farmers' Loan & Trust Co., $4,002.32	
Corn Exchange Bank, Bronx, 233.85	4,236.17

INCOME ACCOUNT.

At the close of the year the balance on hand was $10,877.24.

Your Committee are compelled to report, for what they hope to be the last time, that the General Income Account of the Society has, as usual, been insufficient to meet the current expenses and the cash balance at the end of the year has been somewhat reduced.

The Pension Fund continues to bear heavily on this fund as the Society is obliged to apply $3,665 annually to the Pension Fund. This amount can hardly be reduced, and it should be increased in order to provide some provision for the widows of deceased employees; a feature in which, at the present time, the Pension Fund is lacking.

ANIMAL FUND.

On account of the scarcity of animals in the market during the year, no new efforts were made to raise funds by subscription for this fund, but $18,000 were transferred from the Privilege Account. The balance on hand at the end of the year will be sufficient, if supplemented later by special subscription of about $10,000, to re-stock the Park, provided, of course, that our maintenance allowance is sufficient to supply the needed food and attendance.

The Society proposes to present a collection of animals to Antwerp to help re-establish the collections of the Antwerp Zoological Gardens, which have been totally destroyed during the war.

Mr. F. E. Blauuw, who is one of the Honorary Members of the Society and the owner of a very extensive private zoological collection, especially of birds, at Hilversum, Holland, has appealed to the Society to secure for him sufficient corn to maintain his collections during the pending shortage of food.

ENDOWMENT FUND.

During the year, life membership fees amounting to $1,000 were added to the Endowment Fund. The total amount of the fund at the close of the year was $370,701.25. It is invested in securities yielding an average net annual income of 4.25 per cent. per annum.

STOKES BIRD FUND.

The income from this fund, which consists of $5,000 bequeathed to the Society by the late Miss Caroline Phelps Stokes, is limited to the protection of bird life in North America.

On December 31, 1918, there was a balance on hand of $458.54, of which $200 represent the income received during the year.

CADWALADER ANIMAL FUND.

This fund consists of the income from the fund of $20,000 bequeathed to the Society by the late John L. Cadwalader, which is available only for the purchase of animals for the Park. No expenditures have been made from this fund during the year and there is a cash balance on hand of $1,775; of which $275 represents income received during the year.

ART GALLERY FUND.

The following new pictures were purchased:

Alaskan Bear, by Carl Rungius
Polar Bear, by Carl Rungius
The Pallas Cormorant, by R. Bruce Horsfall
The Great Auk, by R. Bruce Horsfall

Subscriptions for 1918 to the Art Gallery Fund were received from the following:

George F. Baker	$500
Andrew Carnegie	500
C. F. Dieterich	500
Ogden Mills	500
Henry M. Tilford	500
Frederick G. Bourne	250
	$2,750

Also, the following subscriptions for 1919 (the last year for the special subscriptions to this fund) were received from:

George J. Gould	$500
C. Ledyard Blair	500
Frederick G. Bourne	250
Joseph A. McAleenan	250
	$1,500

This leaves only one outstanding subscription of $250 for 1919.

The receipts during the year were $4,250 and the cash balance on hand, December 31, 1918, amounted to $7,421.68.

TROPICAL RESEARCH FUND.

Owing to war conditions, work at the Tropical Research Station was suspended and the year was devoted to the study and publication of the scientific results already obtained. The first volume of "Tropical Wild Life" was published during the year. The volume was supplied at cost to the members, namely, $2.00; the price to those other than members being $3.00. Receipts from the sale of this attractive book during the year were $536.24.

Subscriptions during 1918 for the maintenance of tropical research work were as follows:

Mortimer L. Schiff	$1,000
Andrew Carnegie	500
C. Ledyard Blair	500
	$2,000

The total expenses of this fund amounted to $3,056.44, leaving a balance on hand of $409.19 of the subscriptions for 1918.

A call for subscriptions for 1919 has been made and the following have subscribed:

Anthony R. Kuser	$1,500
Andrew Carnegie	1,000
A. Barton Hepburn	1,000
George J. Gould	1,000
C. Ledyard Blair	500
Cleveland H. Dodge	500
Mortimer L. Schiff	500
	$6,000

Of this amount, $4,000 have been paid. With this money it is intended to re-establish the Research Station and continue the really brilliant work now under way. It is hoped that this station will develop ultimately not only into a great source of supply of animals for the Park and the Aquarium, but that it will lead, under the able directorship of Mr. Beebe, to a biological station that will be unique among the zoological foundations of the world.

NATIONAL COLLECTION OF HEADS AND HORNS.

The only sources of income for this fund are transfers made from the general income account of the Society and private subscriptions. There have been no transfers or subscriptions to this fund during the year, and expenditures of only $18.61 have been made; leaving the balance on hand, December 31, 1918, of $107.16.

The acquisitions during the year by gift and purchase are as follows:

From Mr. Archibald Harrison, Manila, Philippine Islands:
Four skulls and horns and head skins of Gaur.
Skull and horns of "Bo-dung."
Skull and horns of an adult bull Tamarao.
Mounted head of a young female Tamarao.
Skull and antlers of Philippine Sambar Deer.
Two tiger skulls.

From Mr. John R. Bradley, New York City:
Mounted head of Gemsbock.
One Dik-Dik Antelope, mounted entire.
Mounted head of Goitred Gazelle.

From Mr. William F. Velton, New York City:
Two mounted heads, with interlocked antlers, of Texan White-tailed Deer.

HEADS AND HORNS MUSEUM.

War conditions necessitated the postponement of the construction of the Heads and Horns Museum, but the subscriptions to this fund, with one exception, have all been paid in and an additional $10,000 has been guaranteed by the individual members of the Executive Committee. The entire amount, $80,000, has been invested in 3½% Liberty Bonds. There was a small uninvested balance on hand December 31, 1918, of $5.55.

WILD LIFE PROTECTION.

The work of the Society in this field has been financed during the year by the Permanent Wild Life Protection Fund and

$81.00 were derived from the sale of our book "Vanishing Wild Life."

The balance on hand December 31, 1918, was $930.07.

PUBLICATION FUND.

The balance on hand on December 31, 1918, was $1,597.53. Because of financial reasons no publications were issued during the year.

The privilege funds of the Aquarium, derived from the sales of various publications, have accumulated until they now are sufficient to finance the issue of a new catalogue of the Aquarium. This work, which has for some time engaged the attention of the Director of the Aquarium, will be profusely illustrated and form a very complete guide book.

LIBRARY FUND.

The Library Fund is supported by transfers from the general Income Account of the Society. No transfers were made during the year. The balance on hand December 31, 1918, was $209.48.

It is intended ultimately to arrange to have the Library make a special effort to assemble conservation literature so that it will become a complete reference library on the subject.

CARNEGIE PENSION FUND.

The fund of $100,000 received from Mr. Andrew Carnegie, produced $4,335 during the year. In order to make up the amount guaranteed, the Society was obliged to contribute from its general Income Account the sum of $3,665.

A sum of not less than $150,000 is required to make the Pension Fund absolutely secure and to relieve the Society of the constant drain on its Income Account but, above all, to provide for a relief fund for widows of employees for whom no provision is now made.

SPECIAL MAINTENANCE ACCOUNT.

This is a fund subscribed by the Managers of the Society to provide for the deficit in the City's appropriation for 1919 for Park and Aquarium, which is estimated at $18,000. The subscriptions to this fund amount to $11,200.

The Board of Managers have voted that any subscription made for maintenance shall be for the year 1919 only, and that such action on the part of the Board shall not be considered a precedent for imposing upon the Managers of the Society any obligation to supply any portion of the maintenance for the Park or the Aquarium in the future.

The terms of the contract between the City and the Society state very distinctly that the City "shall annually provide the necessary funds for the maintenance and care of the Zoological Gardens, its buildings, enclosures and other improvements made from time to time therein and the animals and collections of said Society." This is part of the consideration for the Society throwing open its collection to the public free of charge on five days of the week.

The City in addition is spared the expense of maintaining a park of 264 acres, which is acknowledged to have been kept up by the Society in a better condition than any similar grounds in the City.

The total cost to the City for the upkeep of the Park and the Aquarium for the year 1918 was less than eight cents for each visitor.

THE PHEASANT MONOGRAPH.

The first volume of "A Monograph of the Pheasants" appeared in the autumn of 1918. The remaining volumes are complete so far as to text, and the delay in their appearance is occasioned by the fact that some of the plates for the illustrations of the last volumes are in storage in Vienna. So far as we know, they are safe, but cannot be withdrawn until conditions become more settled.

This monograph is in four volumes, costing $62.50 each, but the subscription is for the entire set and each volume is paid for as delivered.

This work is believed to be the most perfect zoological publication as to illustrations, printing and text ever issued. It differs from the ordinary monograph in being an extraordinarily readable and interesting book.

MIGRATORY BIRD TREATY.

During the year a most important event in Wild Life Conservation was the passage by Congress of the enabling act which put into effect the Migratory Bird Treaty. This is one of the most important events in bird protection, as the principle of Federal control when once established can be extended in many directions to save our fast vanishing wild life. It became a law on June 16, 1918.

The Society also participated in several movements to check hasty and ill-considered action under the guise of "war necessities," such as the invasion of national parks by cattle and sheep and other wasteful uses of national resources. The Society regards the grazing of cattle and more particularly of sheep as most injurious to national parks.

CONSERVATION.

During the year, the Chairman of the Committee, Mr. Grant, went to California and took further steps toward the preservation of the Redwoods and the forming of the "Save the Redwoods League," which embraces many of the most influential men on the Coast. It is formed for the purpose of protecting the Giant Redwoods and Sequoias, and through the instrumentality of this League it is believed that the preservation of these trees throughout the State of California can be assured.

MEDICAL DEPARTMENT.

The Medical Department under Dr. Huntington has made great scientific use of the soft parts of such animals as have died during the year, while the skeletons and skins have been furnished to the American Museum of Natural History for exhibi-

tion purposes. In case of duplicates, other museums throughout the country have been furnished with the surplus material.

WAR SERVICE.

Facing page 79 of this report will be found a list of the employees engaged in 1918 in war service or services essential to the conduct of the war. In all cases where the pay received from the Government was less than that received from the Society, the difference was made up by the Society from the Income Account. The Society was unable to avail itself of the provisions of the Fenner law and collect these sums from the City.

RECEPTIONS.

Annual Dinner.—The Ninth Annual Dinner of the Board of Managers was held through the courtesy of Mr. George F. Baker, at his residence, 258 Madison Avenue, New York City, on Thursday, December 27, 1917.

The Tenth Annual Dinner was given through the courtesy of Mr. Percy R. Pyne at the Metropolitan Club on December 26, 1918.

Reception at Aquarium.—The Annual Reception to members was held at the Aquarium on Monday evening, May 6, 1918. About 500 members and their guests attended this function. The Members of the Board of Managers and their wives acted as Reception Committee.

At the Zoological Park, Ladies' Day and Members' Day fell on May 16, 1918, and about 1,500 members and guests were present. It was preceded by the Spring Meeting of the Board at the Administration Building.

A smoker at the Century Association was held by the Zoological Society under the auspices of Dr. Townsend for the American Fisheries Society on September 20, 1918.

MEMORANDUM OF MEETINGS, 1919.

Annual Meeting of the Society:
JANUARY 21, 1919, 8:30 P. M.
Hotel Waldorf-Astoria.

Meetings, Board of Managers:

January 21, 1919, 3:00 P. M.
Annual Meeting,
Down Town Association.

May 15, 1919, 2:30 P. M.
Park Meeting,
Preceded by Luncheon at 1:30 P. M.

OCTOBER 20, 1919, 4:00 P. M.
Aquarium Meeting.

Annual Dinner,
December 26, 1919.

Meetings, Executive Committee:

January 9,
February 13,
March 13,
April 10,
May 8,
June 12,
October 9,
November 13,
December 11.

Members' Reception at Aquarium.
8:30 P. M., May 5, 1919.

Members' Day and Ladies' Day at the Zoological Park.
3:00 P. M., May 15, 1919.

BRONX PARKWAY COMMISSION.

At the Annual Meeting on January 14, 1919, an interesting series of pictures was shown, showing the transformation of the Bronx River from a refuse dump and open sewer into a rural parkway. The Bronx Parkway Commission, which owes its origin to the Society, has secured title to virtually all the land from Bronx Parkway to Kensico Dam and very marked progress has been made with its development.

AUDITING.

The Auditors of the Society, Messrs. Marwick, Mitchell, Peat & Company, have audited and found correct the accounts of the Society, including the system of receiving and paying for supplies at the Park and at the Aquarium.

The Auditors' report, as well as that of the Auditing Committee, follows the report of the Treasurer on page 127.

ACKNOWLEDGMENTS.

The Directors of the Park and the Aquarium and their respective staffs have done everything possible to facilitate the work in their respective institutions and to maintain them at a high standard of efficiency, in spite of the discouragements of the year. The Committee desires to acknowledge their zeal and faithfulness.

Respectfully submitted,

MADISON GRANT, *Chairman,*

PERCY R. PYNE,
WILLIAM WHITE NILES,
WM. PIERSON HAMILTON,
FRANK K. STURGIS,
LISPENARD STEWART,
WATSON B. DICKERMAN,
ANTHONY R. KUSER,
HENRY FAIRFIELD OSBORN,
Ex-Officio.

Extracts from the Minutes of the 263rd Meeting of the Executive Committee of the

New York Zoological Society,

held on Thursday, April 10, 1919.

Mrs. Margaret Olivia Sage

Resolved, That the following Minute be entered on the records of the Society:

Mrs. Margaret Olivia Sage died on November 4, 1918, leaving many great legacies and bequests to institutions philanthropic and benevolent in their purposes and to civic corporations formed for the benefit, welfare and pleasure of the people.

The New York Zoological Society were beneficiaries of her noble bounty in a large degree.

It is with deep gratitude and the keenest appreciation that this gift is accepted and the thanks of the Society placed on record.

Although Mrs. Sage may not be able to watch the great development and equal improvement that is now made possible by her benefaction, yet the cause of science and education, as well as the joy and pleasure of her fellow citizens old and young, will prove a lasting and beautiful memorial to her.

Further Resolved, That a copy of the foregoing Minute be conveyed to the Trustees of the Russell Sage Foundation.

Major William Austin Wadsworth

The Chairman reported the death, in Boston, on May 2, 1918, of Major William Austin Wadsworth, Member of the Class of 1919.

Upon motion, duly seconded, it was

Resolved, That the New York Zoological Society learns with deep regret of the death of their associate on the Board of Managers of the New York Zoological Society, Major W. Austin Wadsworth. In his death, the Society loses one of its most devoted friends, and the community, one of its most loyal and useful citizens, and the Committee desires to take this opportunity to express its sense of personal bereavement. Be it further

Resolved, That a copy of these minutes be sent to the family of Major Wadsworth.

REPORT OF

THE LADIES' AUXILIARY

1908-1919.

FROM the minutes of a meeting of the Executive Committee of the New York Zoological Society, held February 19, 1908:

"The Secretary reported that Mrs. Henry Fairfield Osborn had volunteered to organize a Ladies' Auxiliary for the purpose of obtaining new members, and extending the influence of the New York Zoological Park." Upon motion, duly seconded, it was "Resolved, that the Executive Committee of the Board of Managers of the New York Zoological Society accepts with thanks the kind proposal of Mrs. Osborn to organize a Ladies' Auxiliary for the purpose of obtaining new members and extending the influence of the Park."

From this, began the Ladies' Auxiliary, which has, in these eleven years, brought in to the Society, hundreds of new members, and extended great interest in the Park.

The first business meeting was held at the Colony Club, on February 26, 1908, at which Mrs. Osborn was made Chairman, Mrs. Wm. B. Osgood Field, Secretary, and the following ladies became Members of the Ladies' Auxiliary:

Miss Charlotte Barnes
Miss Kate Brice
Mrs. George C. Clark
Mrs. Ogden Codman
Mrs. Bayard Cutting
Miss Cuyler
Mrs. Wm. P. Hamilton
Mrs. J. Borden Harriman
Mrs. Thomas Hastings
Mrs. Henry Hoyt
Mrs. Wm. H. Hyde
Mrs. Richard Irvin
Miss Marbury
Mrs. Walter E. Maynard
Miss Anne T. Morgan
Mrs. J. Pierpont Morgan
Mrs. Levi P. Morton
Mrs. Stephen H. Olin
Miss Parsons
Mrs. Percy Pyne
Miss Rhett
Mrs. Ralph Sanger
Mrs. Philip Schuyler
Mrs. Finley J. Shepard
Mrs. Richard Stevens
Mrs. F. K. Sturgis
Mrs. Wm. V. S. Thorne
Miss Townsend
Mrs. Richard Trimble
Miss Dorothy Whitney
Mrs. Egerton L. Winthrop

Photo. by Elwin R. Sanborn

MEMBERS' DAY IN THE ZOOLOGICAL PARK

Under the auspices of the Ladies' Auxiliary of the Society, the members of the Society enjoyed a delightful afternoon. Refreshments were served with the accompaniment of charming music and a smiling sky.

The organization holds two business meetings a year,—one in December, at which the winter lectures are arranged, and one in March, which plans for the Annual Spring Garden Party at the Park.

During the past eleven years there have been held at different private houses, and at the Colony Club, many lectures. This year, 1919, in February, a lecture was given at the home of Mrs. Vincent Astor, at which Mr. Madison Grant presided, and Ensign Donald B. Mac Millan gave his very interesting lecture on "The Crocker Land Expedition," sent to the North by the American Museum of Natural History and the American Geographical Society. New members were obtained, and interest in the Park aroused, by beautiful new pictures of the Park and its inmates, shown by Curator Ditmars.

At the first lecture, April 24, 1908, given by Director Hornaday, at the Colony Club, a beloved and former Vice-president of the Society presided—John L. Cadwalader, who, by his rare grace and charm, lives forever in the Society's annals. At this meeting, Mr. Cadwalader outlined the purposes of the Society, and what the Ladies' Auxiliary could accomplish.

At these lectures, during the past eleven years, Captain Bartlett has described the Rainy-Whitney Expedition; the capture of, and transporting to the Park of the beautiful Polar Bear, which the children of the Junior Auxiliary presented; Curator Beebe has described "The Pheasants"; "The protection of Game Birds"; "The Abolition of Ladies' Wearing Egrets and Birds of Paradise Feathers, in Co-operation with the Ladies of England and France"; Curator Ditmars on "Reptiles"; Mr. James Barnes on "Central Africa"; and last but one, new pictures of the Park were exhibited, and a lecture on "Life in Yu-Nan, China," was given by Curator Roy Chapman Andrews, of the American Museum, at the residence of Mrs. Arthur Curtiss James.

As a result of these mid-winter lectures, annual members are secured for the Society.

An Endowment Fund Committee of the Ladies' Auxiliary has collected and sent to Mr. Pyne, Treasurer of the Society, to add to the Endowment of the Zoological Society, $2,520 of the $5,000 pledged.

A Junior Auxiliary of children was formed by Miss Charlotte Barnes, who planned the work, enlisting the interest and

activities of hundreds of the children, and when obliged to resign her active interest, Mrs. Richard Trimble took the Chairmanship of the Junior Auxiliary, and has most ably carried it on. The children's interest is keen, and their pleasure and profit very great, for their powers of observation and their love of animals are so quickened when visiting the Park under the kindly and inspiring guidance of Director Hornaday, that as one child said: "I wish I could give *every* animal to the Park."

A very active portion of the activities of the Ladies' Auxiliary has been a combination with the New York Parks and Playgrounds Association, and under the splendid management of it by Miss Pauline Robinson, and the generosity of the individual ladies of the Auxiliary, thousands of children are taken to the Park, under the protection of suitable guides, and from May to November spend days there, and are given lunch in the Park.

During the War, the membership has lessened in numbers, and the Endowment Fund has not been added to, but with the dawn of Peace, and the resumption of normal life once more, it is hoped to extend the efforts of the Ladies' Auxiliary to greater success in the years to come.

MRS. H. FAIRFIELD OSBORN,
Chairman.

Photo. by Elwin R. Sanborn

PAINTING WILD ANIMALS IN THE ZOOLOGICAL PARK

The Society has encouraged the study of its collections by painters and sculptors, and the number of artists that is taking advantage of this privilege is gradually increasing year by year

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REPORT OF THE

DIRECTOR OF THE ZOOLOGICAL PARK

TO THE BOARD OF MANAGERS.

THE year 1918 has been the most unsatisfactory year in the history of the Zoological Park. It involved a serious shortage of coal, the loss of a number of valuable men by the draft, the death of many specimens that could not be replaced, an embargo on imports, a long and irritating investigation by the Commissioner of Accounts, and lastly, a heavy cut in our maintenance appropriation for 1919.

Through diligence and makeshifts of many kinds, the coal shortage was sufficiently overcome that the tropical collections were carried through the winter without any calamities. The outlook for coal is now far better than it was one year ago.

Twelve of our young men were called to the colors, and six others were ordered to seek "essential employment." This placed us in double embarrassment, to supply the places of the absentees and to preserve those places in such a manner that they can again be made available to their original occupants when the government releases them from service. In addition to this, the Zoological Society felt compelled to make up to the men who entered the Army or the Navy the difference between their Park pay and their pay in the service of the United States.

EMBARGO ON IMPORTS.

In June, 1917, the War Trade Board forbade all importations of "wild animals" for any other than "breeding purposes," and this caused a loss of several valuable shipments for which we had previously arranged. The embargo continued until about December 15, when it was "relaxed." Previous to that time the embargo had covered all even-toed ungulates from Central and South America, Africa, Asia, Europe and the Pacific Islands.

OUR MAINTENANCE FUND FOR 1919.

By the most careful management and all possible economies, the Zoological Park was carried through the year 1918 on its fund of $207,586 from the City and $2,642.70 from the funds of the Zoological Society without a deficit. In preparing the annual budget for 1919, it was resolved to ask for no increase save a sum sufficient to give each member of the Zoological Park force drawing less than $1,400 per year a salary increase of 10 per cent. Such an increase would benefit 147 persons, and called for an addition of about $14,000 to our appropriation. In spite of rising prices we resolved to attempt to go through 1919 on the same funds as for 1918, and therefore the total amount called for by our budget was $221,873.

In making up the tentative City Budget, the Board of Estimate cut us down to $175,000!

At the public hearing on the budget, and by correspondence, strong protests were made against that reduction, and an urgent appeal was made for at least $200,000. Eventually the Board increased our amount to $190,000, but coupled with it a condition that the $15,000 added above the tentative budget was for the purpose of providing for a *salary increase* of $100 to each employee receiving less than $1,800 per year.

We heartily endorse the increase in the pay of our low-salaried employees, and we are most thankful that they are to have it. At the same time, our own troubles are on a basis of $175,000 per year for everything save that increase.

The cut we have suffered in salaries and supplies amounts to about 15.5 per cent. of our living expenses for 1918 (i. e., $207,586).

Now, how is that 15½ per cent. deficit ($32,000) to be met?

The working force of the Park must be reduced to make it fit the money available for its pay.

The Zoological Society will raise and contribute toward the cost of food, fuel and general supplies a sum that will cover the 15½ per cent. deficit created under those items. The figures will have to stand about as follows:

Reductions in the working force, to save	$10,000
To be raised by subscription in the Society	18,000
To be taken from the Animal Purchase Fund	4,000
Total deficit to be met	$32,000

To carry out the above program, the members of the Society now are being asked to subscribe, *for the year* 1919 *only*, the $18,000 necessary to keep the Park up to its present level. Subscriptions are being made on the express understanding that under no circumstances will the Zoological Society ask its members to assume for 1921 any portion of the cost of *maintaining* the Park.

We look forward to the future with grave apprehension. The size of the collections of the Zoological Park was based upon our agreement with the City that it would maintain the buildings and collections. Large and numerous collections require a large force of men, and large quantities of food and fuel. Millions of visitors call for a large force of cleaners.

The sum allotted us for 1919, $190,000, is totally inadequate to the needs of the Park if it is to be maintained at its present standard. This year the Zoological Society will make up the deficit, and we will go on, on what will seem to be the 100 per cent. scale. Next year the Society will make up no deficits in maintenance. Will the City give us next year the fund of $220,000 that will be absolutely required for going on? That question we cannot answer.

One thing, however is certain: we can not pay men or buy food and coal with wishes. If the annual funds given us hereafter are not adequate for our maintenance, we will have no recourse but to reduce our collections in order to live within our means.

It is useless to dwell here upon the huge annual influx of visitors (always from 1,750,000 to 2,000,000), or the educational, recreational or financial value of the Zoological Park.

Few consider the financial return that the Society secures for the City, but that return is very substantial. Every visitor not a resident in the immediate vicinity, (and the number of such visitors is a very large percentage of the total), contributes at least ten cents to the transportation system in which the City now has a very substantial interest. The annual total is very nearly that granted by the City to the Society for annual maintenance. Every stranger who visits the city and comes to the Park, (and there are many thousands of them), usually must remain an extra day in order to do so. The total annual cash expended by these visitors we have no means of knowing, but it

must be a large sum. The reports which these visitors make of the Park when they return home tends to induce others to visit New York. In other words, the Park is for the City a valuable advertising medium, and the Society, with its sister institutions, aids in making the City a highly attractive metropolis, spreading its fame throughout the United States and abroad. It is no exaggeration, therefore, to say that the maintenance of the Park is no drain on the wealth of the city, and that financially the City is the gainer by reason of the Park.

Those facts are well known. This Park was made by all the people of New York. It is conducted for them. The Zoological Society not only gets no material "benefit" out of it all, but it is an annual source of expense to the extent of about $30,000. The Society has done far more for this institution that it ever promised to do.

Now, do the taxpayers of New York,—joint owners of the establishment,—wish this Park to be maintained on a level scale, or do they wish its progress to slack up, and drop back? Do they wish to have the word go all over the world that "the New York Zoological Park is going down"? Once that word starts out, it will be a long task to overtake it. The saving which the taxpayers will effect by seriously injuring the Park will equal *less than one cent apiece to each of the inhabitants of Greater New York!*

ATTENDANCE.

The total attendance of visitors at the Park since it was opened in 1899 has been 26,704,936.

The attendance for 1918 suffered a heavy loss through the plague of influenza. During the months of August, September and October, when the crowds should have been great, the falling off was very marked.

The attendance by months was as follows:

	1918	1917
January	38,528	74,238
February	56,620	83,353
March	135,482	89,853
April	161,344	208,723

May	232,337	195,859
June	246,307	263,912
July	269,273	246,944
August	174,949	250,050
September	191,134	216,267
October	108,970	131,467
November	85,099	108,421
December	70,394	29,337
	1,770,437	1,898,424

SKATING ON BRONX LAKE.

In the winter of 1918, a resident of the Bronx elected himself the champion of the interests of the skaters of the Bronx, and various demands were made upon the Zoological Park and the President of the Borough of the Bronx. The Zoological Park force was called upon to exert itself during the winter season to do whatever might be necessary to provide and maintain a free skating rink on Bronx Lake, near the Boathouse. It was kindly proposed that we should keep the ice clear of snow, and when it became rough, flood it with water in order to make smooth ice for skating. We were also expected to take precautions against accidents and assume the whole burden of preventing injudicious persons from breaking through the ice and drowning themselves.

Presently it was represented to the public that the Zoological Society was "preventing" skaters from enjoying themselves on the ice of Bronx Lake, and this quickly developed into an attack on the existence of the Boathouse and the lunchroom that is located therein. A demand was made that the Bronx River be entirely taken out of the jurisdiction of the Zoological Society. A petition of some sort, the precise contents of which are yet unknown to the Zoological Society, was circulated, and numerous signatures were obtained. The representation was made to the Borough President, when the petition was presented, that it contained "10,000 names"; whereas an actual count of the names on the petition by a reporter of the *North Side News* revealed only about 782 names!

At a hearing given by Borough President Bruckner, the Zoological Society stated the fact that at no time since the opening of the Park in 1899 has the Zoological Park administration

prevented skating on Bronx Lake and River, save when the ice is dangerous; and furthermore, that it has expended a reasonable amount of labor in clearing the snow from the ice in winter seasons in order to provide skating. The Zoological Park management declared its inability to expend the $2,000 or $2,500 per year that would be necessary to comply with the demands for a free skating rink in first-class order; and the public was invited to raise a fund of money, by subscription, among the skaters of the Bronx, to do the work which should be done. This invitation was indignantly rejected.

Borough President Bruckner patiently heard both sides, and then declared that the whole matter lay entirely outside of his jurisdiction and that he saw no occasion to interfere.

Since that time, three occurrences, two of them of a tragic character, have emphasized our demand for "safety first." During the present winter two boys broke through the ice, and one of them was drowned. One week following, four boys, who had been sternly warned to keep off the ice, broke through; but through the gallant efforts of a sailor from the Pelham Bay Naval Training Station, named Bertram E. Reed, all four were rescued. The Director of the Park has strongly recommended Seaman Reed to the Carnegie Hero Fund Commission as a candidate for a hero medal. On the next day following a soldier broke through the thin ice in the middle of the river, and was drowned,—after having walked directly past one of our danger signs!

These lamentable occurrences have led some of our critics publicly to acknowledge that our contention regarding the dangerous character of Bronx Lake as a place for skating was well founded. The excess of danger lies in the fact that the strong current in the river, which prevails nearly every winter, maintains *a wide strip of thin ice* in the middle of the river, which, even when the shore ice is thick, and perfectly safe, is exceedingly dangerous, and utterly impossible to guard completely from injudicious persons.

In the future, as it has done in the past, the Zoological Park administration intends to do all that lies within its power to promote skating on Bronx Lake, but the persistent and continuous disregard of our danger signals by persons skating, and by others not skating, will remain in the future, as it has been in the past, a fruitful source of accidents, some of which will oc-

casionally prove fatal. Without fencing in the entire water course and managing it under lock and key, it is impossible to prevent some injudicious people from running into danger and risking their lives.

POLICE PROTECTION.

Early in 1918, following the incoming of the new City Administration, the Zoological Society approached Police Commissioner Enright with an earnest request for a continuation of the special detail of two plain clothes officers during six months of the year, to do duty in the Zoological Park in arresting the most flagrant of the violators of the Park regulations.

Long experience has revealed the fact that one officer in plain clothes is of more effect in preventing vandalism in parks than half a dozen officers in uniform. The police uniform is always to evil doers in parks a danger signal which is visible from afar, and for this reason park vandals are passive while a uniformed officer is in sight, but become active in his absence. The officer in plain clothes is, however, a different matter. He is practically omnipresent, and the liability of arrest by an innocent looking civilian has a deterrent influence that is of very great value in park protection. It is our estimate that in the prevention of pocket-picking and vandalism in public parks, one diligent plain clothes officer, or better still, two officers working together, can accomplish more results in the detection and punishment of disorder and crime than could be rendered by six officers in uniform.

Our request to Commissioner Enright was considered patiently, and was graciously and immediately granted, very much to the benefit of the Zoological Park during the past summer.

ZOOLOGICAL PARK MILITARY COMPANY.

The Military Company formed and drilled in the Zoological Park has maintained its organization, excepting for a depletion by enlistments and service in the army and navy. Fortunately, the small company that remained after nearly half its members had gone into the service of the United States, was not requisitioned for anything more, outside the Zoological Park, than battalion drills and semi-military parades. The great number of soldiers and sailors quartered in and near New York quite appreciably diminished the risk of disorder in New York City, to meet which the company was organized.

The company remains, and will continue to remain, on an active footing, and its members have been supplied by the city of New York with good warm overcoats for winter use, which now render duty in winter not only possible but fairly comfortable.

WAR GARDENS.

During the year our efforts to raise vegetables and grain in the Zoological Park for our animals were diligently continued. The employees of the Privilege Department also raised considerable supplies of vegetables for the Rocking Stone Restaurant.

The report of the Chief Constructor and Chief Forester, Mr. Merkel, shows in detail the quantities of vegetables raised for animal food, from which it will be observed that the saving effected by this industry was quite considerable.

DEPARTMENT OF MAMMALS.

W. T. Hornaday, Curator; R. L. Ditmars, Assistant Curator.

Like a millstone hanging upon the neck of every zoological park or garden is the necessity of continuous replenishment of the collections. The inflow of new accessions must at least be equal to the outgo by old age, accident and disease.

A four-year embargo on imports places a great strain upon any vivarium; and that is precisely what we have been through. Partly by good luck, and partly by extra diligence, the holes that exist in the Zoological Park collections are not really noticeable, save in the Small-Mammal House. There, twenty-six empty cages in one building are decidedly noticeable.

The census of December 31 shows that falling off in the three departments, in figures, but with the exception noted above, our cages seem to be well filled. With the return of peace, all our losses and shortages will be made good, within a reasonable time, and—if adequate maintenance is forthcoming—the end of 1920 will see all the Park collections again up to high-water mark. Already our male African elephant, Kartoum, is starting out again to renew the hilarity of the nations of the earth by becoming "bad," and breaking everything that his Titanic strength can subdue. Really, his actions make us feel that the renewal of "old times" is at hand!

Photo. by Elwin R. Sanborn

FLYING CAGE FOR THE PHEASANTS

Colonel Anthony R. Kuser, who made possible "A Monograph of the Pheasants" recently published by the Society, has presented two of these cages to the Park, one of which has been erected as shown in the picture.

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IMPORTANT ACCESSIONS.

The following were the more important purchases during 1918:

One large female chimpanzee "Susette," 1 Green monkey, 1 rhesus monkey, 2 mangabey monkeys, 1 black entellus monkey, 2 golden baboons, 1 ocelot, 3 badgers, 1 tayra, 2 kit foxes, 1 albino woodchuck, 1 Canada porcupine, 1 Mexican fox squirrel, 4 southern fox squirrels, 1 olive agouti, 1 sea lion, 3 Bactrian camels, male and female and young, 1 Rocky Mountain goat, 1 Texas armadillo and 1 Australian echidna.

The following were the more important gifts during the year 1918:

One black spider monkey, 1 Green monkey, 1 red fox, 2 coati mundis, 2 coyotes, 2 black bear cubs, 1 polar bear cub, 1 kinkajou, 1 Mexican red squirrel, 1 Malabar squirrel, 1 young Bactrian camel, 1 peccary and 1 murine opossum.

DEATHS.

The more important deaths during 1918 and notations of causes condensed from the acting veterinarian's reports were as follows:

Indian rhinoceros, (myocarditis, or inflammation of the muscular tissue of the heart; also aneurism); Bactrian camel, (chronic intestinal catarrh); mountain zebra, (gangrene of the colon resulting from intestinal obstruction); Rocky Mountain goat, (gastro-enteritis).

Our last musk ox had been on exhibition for eight years, which makes an exceptional record for this difficult species. It was the last survivor of several specimens presented to the Society by Paul J. Rainey. A post mortem revealed a condition of general malnutrition. None of the organs indicated an actually diseased stage. For several years we had had difficulty in inducing this animal to properly feed during the transition season from fall to winter.

We also lost several specimens among the larger kangaroos, from a mysterious but mild epidemic which broke out in the Small-Deer House. The disease attacked the lower jaw, each

time starting as a large abscess, and developing rapidly into necrosis. By stringent methods of isolation and disinfection the malady was stamped out. There has been no indication of a recurrence during the past four months.

Several old and decrepit buffaloes were mercifully destroyed, by shooting. We lost the female Yezo bear during a fight with a cagemate and it was found necessary to destroy the hybrid Sloth-Russian Brown bear owing to that animal becoming so savage that it was extremely dangerous for the keepers to enter the dens at cleaning time. There was but a single loss worthy of note in the Primate House, and this involved an East African baboon that had been on exhibition nearly from the time the building was opened. Other extremely old specimens that died during the year were a Congo sitatunga and an Atlai wapiti. One of our sea lions was killed during a fight with a newly arrived specimen and another specimen died of pneumonia during the cold wave in early January. A young male eland was attacked by a larger bull and killed.

Following is a list of births during 1918:

1 Mongoose Lemur	5 Axis Deer
4 Aoudad	1 Hog Deer
5 Himalayan Tahr	1 Mongolian Horse
1 Mouflon	1 Yak
2 American Buffalo	1 Black-faced Kangaroo
1 Eld's Deer	1 Parry's Kangaroo
2 Barasingha Deer	1 Woodward's Kangaroo
7 White-tailed Deer	1 Ring-tailed Wallaby
6 Red Deer	1 Red Kangaroo
4 Fallow Deer	5 Gray Wolves
1 Sika Deer	*2 Grizzly Bears
1 Elk	4 Kit Foxes
4 American Beaver	4 Raccoon Dogs

30 Prairie "Dogs"

*Killed by parent.

During the year we sold four gray wolves, ten red deer and two tahr.

Under the skillful handling of Keeper D'Osta, in charge of the Primate House, the large chimpanzee Susette performed daily in the large outside cage at the northerly end of the Primate House. This continued during the warm spring, sum-

mer and autumn months. These exhibitions were remarkable demonstrations of the mental capabilities of the anthropoids. Susette dined from a table, smoked cigarettes, did "trick" riding on a bicycle, walked a tight-rope, ascended a sharp incline on a big ball and concluded with a surprising exhibition of roller skating. These performances were enjoyed by thousands of visitors and they particularly entertained the children, for whom an elevated platform is provided.

As in former years, the Society loaned a series of small mammals, birds and reptiles for study purposes to the Washington Irving High School. These animals are returned to the Park during the vacation period and sent back in September. This school has a very attractive vivarium for the exhibition of living specimens, and each year it is visited by thousands of children from schools in different parts of the city.

A census of the collections of mammals compiled on December 31, 1918, is as follows:

	Species.	*Specimens.*
Marsupialia	14	35
Edentata	1	1
Carnivora	38	89
Pinnipedia	1	2
Rodentia	25	137
Primates	27	56
Artiodactyla (Even-toed Ungulates)	47	224
Perissodactyla (Odd-toed Ungulates)	11	19
Proboscidea	2	3
Monotremata	1	1
	167	567

DEPARTMENT OF BIRDS.

Lee S. Crandall, Curator; William Beebe, Honorary Curator; Samuel Stacey, Head Keeper.

The close of the great war finds the collections of the Bird Department somewhat reduced in numbers but still rich in rare and unusual forms. Increased vigilance and intensive care on the part of our keepers has enabled us to retain many species which might easily have succumbed to the adverse conditions through which most of them have successfully passed. We thus

have a sufficient nucleus from which we may safely expect soon to regain our former numbers and at the same time spare a considerable collection of duplicates for European institutions more needy than ourselves.

During the past year, only sixteen species new to the collection were added, as compared with sixty-five during 1914, the first year of the war. Of these, the most important is a fine male argus pheasant (*Argusianus argus*), which we purchased on October 2. Very few living argus pheasants have reached this country and of the number none have long survived. Our bird, however, seems uncommonly vigorous and healthy, and is in excellent plumage.

Other noteworthy arrivals were a fully adult male regent bird (*Sericulus chrysocephalus*), in plumage of black and orange velvet; a green-backed trumpeter (*Psophia viridis*), a rare and especially interesting bird, allied to the cranes, and a double-banded puff-bird (*Bucco bicinctus*), an obscure relative of the wood-peckers, probably never before exhibited alive.

On August 31, we received a tiny chick of the galeated curassow (*Pauxi pauxi*), no larger than a quail. Fortunately, we had at the time a silky hen acting as a foster-mother to a young banded curassow of about the same age, and she readily accepted the newcomer. This bird has now become full-grown and the curious plum-like protruberance at the base of the beak has nearly reached its full size.

Among the birds bred in the Park during the year, the most unusual is a banded curassow (*Crax sclateri*). Very few curassows have been bred in captivity and in the United States this has been accomplished only in the case of the globose. After several fruitless attempts, we at last succeeded in rearing one young bird, apparently the first record for the species.

Three fine young upland geese (*Chloëphaga magellanica*), attest the value of silky hens as foster-mothers. The parent geese hatched two goslings in 1917, but soon lost them. Last year we placed their eggs under a tiny silky, which finally hatched and triumphantly reared three vigorous youngsters. The species has not previously been bred in this country.

The laughing gulls in the Flying Cage, after many vicissitudes, reared two young birds and a single white ibis survived, the first in several years to do so. A good number of wood and

ANOTHER BROOD OF EMUS

This season our emu family has been increased by five birds, and at this time the male bird and his little family are prospering. The young birds were hatched in the Park from eggs laid by our birds

Photos. by Elwin R. Sanborn

OSTRICHES FROM THE BLOOMSBURG OSTRICH FARM

When the Bloomsburg venture collapsed we secured this fine collection of birds at a price that made the transfer a bargain. The birds are healthy and thoroughly acclimated.

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U. C. MICH.

mandarin ducks were brought to independent size and liberated on the Wild-Fowl Pond.

The mourning doves at the Pheasant Aviary did not achieve the success of former years and no young birds were liberated. But several remain about the Park from former years and for the first time young birds were reared by parents at liberty.

The only new installation of the year is a domed cage, measuring twenty by forty feet, the gift of Col. Anthony R. Kuser. This aviary, located to the north of the pheasant collection, has been stocked with about twenty male golden and silver pheasants, making a gorgeous display.

Early in the year, the Society undertook the breeding of homing pigeons for the Government. The best specimens obtainable were secured and the work was in full swing at the close of the war. A flock of these pigeons will continue to remain part of the Society's collection, so that they may be available in time of future need.

Two of our keepers who were members of the National Army, have returned to their duties in the Park. Private Howard Engeholm was gassed at Chateau Thierry, but has made an excellent recovery and was able to resume his position on February 1, 1919. Private Louis Wahl spent several months in training at Camp Dix, where his special knowledge made him of value to the Pigeon Section. He was about to go overseas when the armistice intervened.

The distribution of specimens dying in the Park was carried on throughout the year by Curator Crandall. A total of 422 Mammals, Birds, Reptiles and Batrachians were divided among ten individuals and institutions, where the material was most needed.

CENSUS OF BIRDS LIVING IN THE ZOOLOGICAL PARK.

January 1, 1919.

Orders.		*Species*	*Specimens.*
Struthioniformes,	Ostriches	2	4
Casuariiformes,	Cassowaries	3	10
Tinamiformes,	Tinamous	3	5
Galliformes,	Quail, Pheasants, etc.	68	149

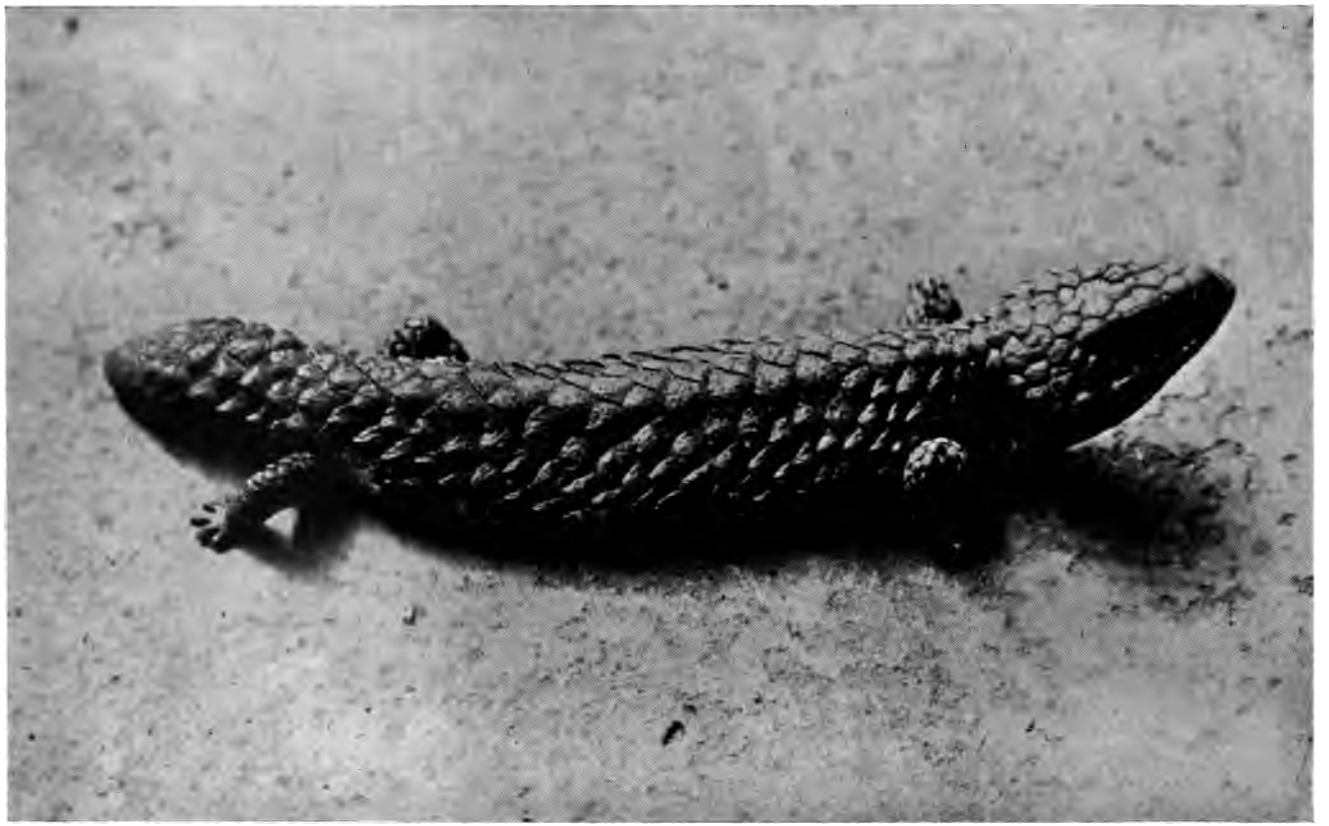
Turniciformes,	Hemipodes	2	3
Pteroclidiformes,	Sand Grouse	1	1
Columbiformes,	Pigeons and Doves	61	189
Ralliformes,	Rails and Gallinules	11	14
Sphenisciformes,	Penguins	1	1
Lariformes,	Gulls and Terns	11	40
Charadriiformes,	Plovers and Sandpipers	5	10
Gruiformes,	Cranes, Seriemas, etc.	13	27
Ardeiformes,	Ibises, Storks and Herons	30	70
Palamedeiformes,	Screamers	2	3
Phoenicopteriformes,	Flamingoes	2	2
Anseriformes,	Swans, Geese and Ducks	54	488
Pelecaniformes,	Cormorants and Pelicans	10	18
Cathartidiformes,	New World Vultures	7	14
Accipitriformes,	Hawks and Eagles; Old World Vultures	19	30
Strigiformes,	Owls	13	33
Psittaciformes,	Parrots and Cockatoos	66	137
Coraciiformes,	Kingfishers, Hornbills, etc.	4	9
Cuculiformes,	Cuckoos and Touracos	6	10
Scansoriformes,	Barbets and Toucans	6	9
Piciformes,	Woodpeckers	4	11
Passeriformes,	Thrushes, Sparrows and other perching birds	332	1,119
		736	2,406

Summary: Orders, 26; Species, 736; Specimens, 2,406.

DEPARTMENT OF REPTILES.

Raymond L. Ditmars, Curator; Charles Snyder, Head Keeper.

The work of the department during the year involved a continuous struggle to maintain the collection at a standard to compare with former years. No foreign specimens arrived to fill gaps caused by the gradual loss of delicate specimens during four years of war and embargo on the shipments of all kinds of animals. Moreover, it was extremely difficult to obtain specimens of the North American reptiles. Nearly all of our former collectors were engaged in some kind of government work and could not be reached or had not the opportunity to gather specimens.



STUMP-TAILED LIZARD

So head-like is the tail, that a casual glance would lead the observer to imagine that this curious lizard was possessed of two heads.

The Curator of this department gave part of his vacation to collecting specimens in the mountains of Sullivan County, engaged a guide and made a number of trips to ledges and covered much ground by automobile. This work resulted in the capture of over a hundred good exhibition specimens of ten distinct species and enabled us to fill several of the big cages which were practically empty. One of the exhibits thus formed consisted of a fine series of rattlesnakes.

Keeper George Palmer spent his entire vacation period in collecting reptiles in Pike County, Pennsylvania. He brought back over eighty specimens of reptiles and an interesting series of amphibians and insects.

The scientific work of the department during the year consisted of articles for the New York Zoological Society *Bulletin.* The Curator also prepared and arranged 4,000 feet of motion picture material which was exhibited at the Board of Managers' Dinner and the Annual Meeting. This material was afterwards projected in the Park in an entertainment arranged by Curator Ditmars for the Keepers and other members of the Park force. At the suggestion of the Chief Engineer of Light and Power of the city, Mr. Ditmars was examined and passed as a licensed motion picture operator and hence may officially under the new laws assist the Society in its exhibitions.

The department shipped a quart of dried snake venom to Dr. Vital Brazil, at the Institute of Serum Therapy, at Sao Paulo, Brazil. The institute was much in need of a generous supply of venom to continue its work of producing anti-venomous serums. The venom was obtained from one of our collectors in Texas and represented the extraction of poison from over three thousand large rattlesnakes.

Following is a census of the collection compiled on December 31, 1918:

	Species.	*Specimens.*
Chelonians	30	137
Crocodilians	3	66
Lizards	10	35
Snakes	40	184
Amphibians	12	55
Total	95	477

SUMMARY OF COLLECTIONS.

A census of the animals in the Zoological Park, taken January 1, 1919, is as follows:

	Species.	*Specimens.*
Mammals	167	567
Birds	736	2,406
Reptiles and Amphibians	95	477
Total	998	3,450

DEPARTMENT OF ADMINISTRATION.

H. R. Mitchell, Chief Clerk and Manager of Privileges; Wm. Mitchell, Cashier.

The task of furnishing all materials and supplies needed for the maintenance of the Park from the fund received from the City for the year 1918 seemed at the outset impossible of accomplishment. A shortage of at least five thousand dollars would have resulted but for savings in the salary accounts due to resignations and vacancies. In spite of these savings, expenditures were at one time in the year more than $4,000 in excess of our monthly proportion of the appropriation. The mild weather that prevailed in November and December materially reduced our coal requirements and was an important factor in helping us to finish the year without a deficit.

Notwithstanding these difficulties in 1918, and our request for an increase of $14,287.08 in Maintenance over 1919 with which to make advances in the pay of our low-salaried employees, our appropriation was cut $32,000 under our allowance for 1918, which included an addition of about $500 for materials and supplies outside of the increase for our low-salaried employees. These salary increases are imperatively needed and must be made. The Zoological Society, therefore, faces the necessity of making up the shortage by special subscription or other funds ordinarily used for the general purpose of the Society.

Co-operative Store.—Support of the co-operative store, which was organized late in 1916 as an aid to our employees, having fallen off quite seriously, it was decided to close it out at the end of the year and dispose of the remaining stock as soon as possible.

Privileges.—Regardless of the high prices of all supplies used in the operation of the Privileges, and the fact that the attendance fell off somewhat, the showing for this department was considerably better than for the previous year. The epidemic of Spanish Influenza which was prevalent during the latter part of the year was the immediate cause of the reduction in attendance, and quite seriously affected the total receipts and profits for the season.

Rocking Stone Restaurant.—While the gross receipts for the restaurant were below the receipts for 1917, about in proportion to the drop in attendance, there were some improvements in the conditions affecting this business so that we were able to show a small profit for the year, which is about all that we can expect to do in this class of refreshment business under the present conditions.

Boating.—A very substantial increase was shown in both gross receipts and net profits of the boating business. Considerable expense was incurred, however, in addition to our equipment. One car-load of new row boats had to be added regardless of the very great increase in their cost in order to replace old boats that had to be discarded. The battery equipment of our electric launches required one complete new set of batteries and some repairs to another, involving the expenditure of a considrable sum. The net profits of the boating were greater than for any previous season.

Boat-House Restaurant.—The closing of the dining room portion of the Boat-House Restaurant during the winter months and the operating of the lunch room only for that period was continued, enabling us to make further reductions in our losses over last year. With the closing of the war and the gradual return to normal conditions, it is hoped that in another year we may be able to operate without a loss.

Soda Water.—The difficulties attendant on the operation of this branch of the Privileges continued to increase during the year 1918. Restrictions in the use of sugar and other supplies for ice cream and soda water purposes were in full effect until after the close of our season. Anticipating this, we endeavored to change our service so far as possible to plain drinks, and to this end put in several special dispensing outfits for the purpose, with the result that we were able to care for our refreshment demands quite satisfactorily and at the same time conserve sugar

and other supplies in full accord with government requirements. Taking into consideration all restrictions under which we operated, the financial results were all that could be expected, showing quite a substantial increase over figures for the previous year.

Guide Book.—About the middle of the season it became apparent that the supply of guide books would not last through the year. As the last revision had been made quite recently, and the matter was well up to date, it was decided to print a second 20,000 run of the American Eagle Edition. For the first time it was necessary to raise the selling price of the Guide Book above 25 cents. The great advance in paper and all labor in the manufacture of the Guide Book forced an advance to 30 cents, but the volume of sales did not seem to be affected unfavorably by the increase in price.

Souvenir Books, Postals and Miscellaneous Publications.—The stock of miscellaneous publications carried over from last season has been sufficient for our needs during the year. While the sales of these issues were not equal to last year, the reductions were only about in proportion to the loss in attendance.

Gate Receipts.—Receipts from this source, which were in excess of the year 1917, were all placed to the credit of the Improvement and Repair Account, but only a portion of the amount was expended, leaving a substantial balance in this fund when the year closed to cover any urgent repairs that may be required in 1919.

Riding Animals.—This department of the Privileges made a very satisfactory gain over last year's figures. While the profits from this source are rather small and add but little to the fund for increasing our animal collections, the riding animals are always immensely popular with the children.

REPORT OF THE DEPARTMENT OF FORESTRY AND CONSTRUCTION FOR THE YEAR 1918.

Hermann W. Merkel, Chief Constructor and Forester;
E. H. Costain, Assistant Forester.

Owing to the many difficulties encountered in obtaining satisfactory labor, the lack of funds together with the well-defined war policy of the Society that no strictly new work of any account

A SKILLED PIECE OF FORESTRY WORK

Mr. Svoboda has demonstrated many times that his men can fell trees with precision and dispatch. Here we have a practical example of his skill in removing a huge sweet gum standing within six feet of the Service Building, causing no other damage except a break in a short section of the guard wire

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should be undertaken, the work of this department has lagged behind the activities of former years.

THE IMPROVEMENT AND REPAIR FUND.

Only two items were charged to this fund during the year.

Lion House Cage-deck Roof.—The copper surfacing of the cage-deck of the Lion House, that has leaked for more than ten years despite the many repairs made upon it, was by expert roofers pronounced hopeless. This was due to the many obstructions in the surface caused by the skylight and ventilators, which prevented the necessary expansion and contraction of the metal. For this reason a new bituminous roof surface was applied. The contract was awarded to the C. T. New Construction Co. The difficulties in obtaining materials, and the many demands of the Government upon the contractors, delayed the work to a certain extent. It finally was carried to a successful conclusion before the advent of bad weather, and for the first time since the building was erected, the Lion House has a thoroughly watertight roof.

New Boiler Installation in the Monkey House.—As the old boilers in this building had been gradually failing and needed to be replaced, it was determined to alter the location of one of them so as to bring it nearer the smokestack, instead of thirty feet away. A new boiler pit was excavated in the rock bottom of the cellar, and the pit concreted and connected with the sewer. A boiler—Pierce, Butler & Pierce down-draft type—was installed, and connected with the heating system of the building. The entire installation has proven very successful, and I believe that its entire cost will soon be saved because of the fact that pea coal can be used as fuel instead of the more costly sizes of coal formerly used. The chimneys of this building were in a dangerous condition, necessitating their removal nearly to the roof line. They were rebuilt and extended four feet in height.

Walk and Road Repairs.—Only the most necessary work was done on the roads; our efforts being confined largely to repairs on the Service Road. In order to keep the walks up to the former standard, it will be necessary to do a great deal of repairing in 1919.

Repairs in Buildings.—Since the old shed at the Elk Range was too dilapidated to warrant further repairs, a new shelter,

13′ x 50′ was erected on a concrete foundation, and supplied with a concrete floor.

Minor repairs were made in a number of buildings and installations in the Park. The roofs, gutters, leaders and heating plants demanded a very large share.

Since it was considered necessary that the great amount of steel and wire work must be kept painted at all hazards to prevent rapid deterioration and maintain a thrifty appearance, a great deal of work was done in this line. This, probably, is the only work that is not seriously lagging.

New shingles were put upon a great portion of the roofs of the Service Building and the Buffalo Entrance.

The roofs of the lower Buffalo Barn, the old Shop Buildings, the Asiatic Deer Barn, and many smaller sheds were completely repaired or replaced.

New boiler sections were installed in the Small-Deer House, Lion House, and Primate House.

Care of Grounds.—The grounds and gardens were maintained in as good condition as was possible, and, while they did not present quite the "spick and span" appearance of former years, there were no serious complaints.

The exceedingly severe weather of the winter of 1917-1918 caused a great deal of damage to water pipes and hydrants in ranges, necessitating extensive repairs.

The plantations suffered to a certain extent, and an effort should be made during the coming year to bring the appearance of these plantations up to their former standard of excellence.

Owing to the heavy body of ice that formed on Bronx Lake, it was possible to promote skating a great deal. One of our auto trucks was supplied with a snow scoop, and with this and horse scoops, and the employment of some hand labor, the greater portion of the lake was kept free from snow. The daily census shows that about 17,300 skaters made use of the lake.

The policing of the East Side was done as before, and the war against refuse and litter, and against depredations seems to have achieved some results, since the number of arrests and summonses dropped to 143, as against 255 for the previous year.

NEW YORK SCHOOL CHILDREN IN THE ZOOLOGICAL PARK

Thousands of children visit the Park during the summer months, and the Society regards with great satisfaction the increasing numbers of institutions that avail themselves of this privilege. The children in the upper picture are from "The Crippled Children's East Side Free School," and the lower one is a class from the Bronx Public Schools.

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During a part of the time, officers were supplied by Capt. Ievers of the 53rd Precinct, and they did extremely good work. The arrests made and summonses issued by these men are not included in the above number.

NURSERY.

The customary amounts of vegetable and animal foods were raised at the Nursery, and a certain number of the animal ranges that were utilized the previous season for war crops, were again used for growing food stuffs. In spite of the very bad growing season and the aphid epidemic that was prevalent throughout the season, the following foods were produced:

Vegetable Food.

Mangels	27¼	Tons
Carrots	2813	Bunches
Potatoes	90	Bushels
Cabbage	2983	Heads
Lettuce	3828	Heads
Beets	821	Bunches
Turnips	14	Tons
Cornstalks	30	Loads
Rye, Green	5	Loads
Grapes	219	Lbs.
Honey	10	Lbs.

Animal Food.

Rabbits	1,165
Rats	619
Guineas	363
Chicks	2,036
Ducks	6
Pigs	54
Eggs	1,904

In the greenhouses, 28,100 plants for bedding or other ornamental purposes were produced during the year. This work was carried out with difficulties ever present.

GENERAL.

The high cost of building materials, steel and paint, the great number of changes in the labor force, and many actual

shortages of men have caused serious deterioration in certain lines, and special efforts must be made in 1919 to catch up with these repairs in order to prevent disastrous results. This is true chiefly in walk repair work, in forestry and in repairs on old buildings and installations.

It is imperative that important work should be done in the section of the Park east of the Boston Road; between the Boston Road and the river. The main walk should be built to Bronxdale, and some of the steeper slopes protected from the public, as the bare, hard, tramped soil of these slopes is beginning to erode badly, and many of the fine old trees are dead or dying.

The plot east of the Bronx River adjacent to 180th Street should be cleaned, graded and seeded.

Suitable guard rails should be supplied along the east river walk, and the entire walk, nearly a mile in length, should be resurfaced.

The entire forest east of the Bronx River, in which no repair or pruning work has been done in six years, needs a great deal of attention, and I hope that funds for this purpose will be available.

DEPARTMENT OF PHOTOGRAPHY AND PUBLICATION.

Elwin R. Sanborn, Editor and Photographer; Anna Newman, Assistant.

Photography.—During 1918 the photographic work included views of various subjects in the Park, musk ox, chimpanzees, murine opossum, several of the marsupials of Australia, opossum mouse, phalangers and flying-squirrels; tawny frogmouth, homing pigeons, beavers, beaver works, sloth bears, stump-tailed lizards, etc.; bear dens, details of construction work, forestry work and a series of negatives at the Aquarium.

The continued scarcity of glass as a support for sensitive emulsions is bringing about an important change in photographic work, and that is the substitution of cut films for dry plates. As most of the glass used in this work was produced abroad, the supplies from those sources were practically eliminated. This necessitated the finding of a substitute for glass, which has been realized by the use of heavy celluloid. These films are now being produced and are rapidly taking the place of the old glass plate, an event that is as of much importance as the introduc-

War Service Honor Roll

OF THE

New York Zoological Park

*W. Reid Blair

Enlisted September, 1917, in American Expeditionary Force. Received Major's commission in Veterinary Corps, Nov., 1917. Stationed Camp Lee, Va. Went overseas June, 1918. With Army of Occupation in Coblenz, Germany. Honorably Discharged June, 1919.

*Cyril James Newman

Enlisted August, 1917, in U. S. N. R. F., aboard U. S. S. Granite State. Transferred U. S. S. Pres. Grant, Sept., 1917. Appointed Chief Yeoman, July, 1918. Released from active service, May, 1919.

William Kanski

Enrolled April, 1918. Overseas, 302nd Infantry, July, 1918. Still in service with Army of Occupation.

George Miller

Enrolled May, 1918. Overseas, 84th Division, September, 1918. Still in service with Army of Occupation.

†Edward O. Reuter

Enrolled September, 1917. Overseas, 307th Infantry, April, 1918. Honorably Discharged February, 1919.

*Howard Engeholm

Enrolled October, 1917. Overseas, 328th, Co. H, 82nd Division, April, 1918. Gassed at St. Mihiel. Recovered. In active service 9 months. Honorably Discharged December, 1918.

*Louis Wahl

Enrolled July, 1918. 312th Signal Battalion of 87th Division at Camp Dix. Transferred to Camp Signal Loft as instructor in the handling of Homing Pigeons. Honorably Discharged, Dec., 1918.

William Smead

Enrolled July, 1918. 312th Signal Battalion of 87th Division at Camp Dix. Transferred to Camp Signal Loft as instructor in the care of Homing Pigeons. Honorably Discharged December, 1918.

*Frank Doyle

Enlisted May, 1917. Overseas, Co. F, 9th Infantry. Wounded and gassed at Soissons, July, 1918. Recovered. In active service 18 months. Honorably Discharged February, 1919.

*William Mc Bride

Enlisted August, 1918. U. S. Naval Reserve Force, Great Lake Naval Training Station. Honorably Discharged January, 1919.

David Martin

Enlisted July, 1918, U. S. Naval Reserve Force, Pelham Training Station. Honorably Discharged December, 1918.

Donald Carter

Enrolled April, 1918. Overseas, 78th Division, Headquarters, June, 1918. Honorably Discharged June, 1919.

†Ernest Banks

Enrolled September, 1918. Medical Detachment, Fort Oglethorpe, Ga. Honorably Discharged January, 1919.

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*Returned to the Zoological Park service.

†Returned to the Zoological Park service—Resigned.

tion of dry plates and developing papers. And, moreover, celluloid coated with the same emulsion as glass has decidedly more speed.

The films are unbreakable, and their weight is a mere trifle compared with the same number of glass negatives, and halation is practically eliminated.

The finished film negatives can be filed in an extremely small space such as a filing cabinet used for letters, and in case of necessity one man alone could easily carry from a building a number of these negatives which represented in the same number by the old glass negatives would require at least ten men to transport. In other words, the films require one-sixth of the storage space and are one-tenth of the weight. This is a tremendous advantage both to the explorer, and the commercial photograher.

Bulletin.—Six numbers of the BULLETIN were issued in 1918, and despite the continued scarcity of sources upon which to draw for contributions the standard of the publication was thoroughly maintained. "The Quest of the Okapi," by Herbert Lang, illustrated by the author's beautiful photographs, and an article on the "Mammals of Australia," by W. H. D. Le Souef, were the most noteworthy contributions. Mr. Beebe furnished several stories from his apparently inexhaustible fund of material. and Mr. Crandall and Mr. Ditmars with their usual skill and perseverance turned old stories into new ones. And, Dr. Hornaday's genius for unearthing editorials where no editorials seemed to exist has added just the necessary finish to the editorial department. Dr. Townsend and the Aquarium staff supplied the material for two of the six numbers of the *Bulletins.*

Annual Report.—The report for the last year was issued as heretofore.

Zoopathologica.—Dr. George A. MacCallum continued his writing for this publication, furnishing a paper of sixty pages, divided into three numbers, illustrated with many drawings, on the genus *Telorchis,* studies of the *Polystomidea* and notes on the genus *Camallanus.*

Zoologica.—Two numbers are in the hands of the printer; one by W. H. D. Le Souef, and the other devoted to the work of Mr. Beebe at the Tropical Research Station in British Guiana.

Appended is a statement of the photographic work in 1918:

Prints for Album (Aquarium)	55
Prints for Album (Park)	343
Prints for Publication	344
Prints for Miscellaneous purposes	573
	1,315

CONCLUSION.

The present year is no time to discuss future improvements with the expectation of seeing them carried out in the near future. We are more than ever impressed by the necessity of the expenditure of about $5,000 in protecting the banks of the Bronx River between the river and Boston Road. This improvement should embrace the entire length of the western bank. It would be unfair to the public to fence off the area that is being damaged from all use by the public until it can be put into condition and provided with walks. On the other hand, it is very disquieting to see the need of work in walk-building and bank restoration without any ability whatever to carry it into effect. At the earliest possible moment this matter shall receive treatment, but first of all funds must be forthcoming with which to pay the cost.

In the immediate future, extensive restorations of wire cage work out of doors will be necessary, and at all hazards these demands must be met. Fine wire netting deteriorates very rapidly and soon falls to pieces.

The ceilings of a number of cages in the Lion House will this year demand thorough repair on account of the damage inflicted upon them by the leaky roof. The roof, however, has been recovered with tar instead of copper, and is now in excellent condition.

The old shelter at the Fordham Entrance continues to be a great eyesore, and a detriment to the reputation of the Park as a whole. It will cost $35,000 to erect there an entrance that will be in keeping with the reputation and general architectural excellence of this institution. There is no source from which to obtain funds for this much needed improvement save from the city of New York, and it is from that source that we must ask for it.

Respectfully submitted,

WILLIAM T. HORNADAY,
Director.

Photo. by Elwin R. Sanborn

ELD'S DEER PADDOCK, ASIATIC DEER HOUSE

Intelligent and persevering care has sustained our herds of this rare and beautiful deer.

REPORT OF THE

PENSION BOARD

NEW YORK ZOOLOGICAL SOCIETY

THE Pension Board of the New York Zoological Society, as appointed by the Executive Committee, consists of:

Geo. C. Clark, Chairman; Lewis R. Morris, Percy R. Pyne, Wm. Pierson Hamilton, Geo. Bird Grinnell, Chas. H. Townsend, H. R. Mitchell, R. L. Ditmars and H. W. Merkel.

The Board held its meetings at the office of Mr. George C. Clark, Chairman, on the first Wednesday of each month.

The following pensions were granted during the year 1918:

		Term of Service		
		Yrs.	Mos.	Per Mon.
Paul Holmer	74	8	4	$20.00
Anna F. Stanbury	61	10		20.00
Michael Lawrence	70	10		22.40
John Wessel	76	8	4	20.00

Relief was granted to William Rose for a period of six months.

On December 4, 1918, a pension was granted to Geo. Moran, to take effect January 1, 1919.

Members lost through death or resignations were as follows:

Name		*Date*	*Refunded*
Wm. Rose	Died	Aug. 23	———
John C. McCarthy	"	Nov. 7	$65.25
Hedwig Sindermann	Resigned or	Jan. 21	1.60
Fred. Langbein	discharged	Jan. 21	50.80
Alex. Ferguson	"	Feb. 11	65.30
Wm. Mercer	"	Mch. 28	54.85
Jos. Laiser	"	Apr. 16	12.25
G. J. Sutcliffe, Jr.	"	May 16	69.30
H. Engeholm	"	May 22	9.70

Frank Sorbe	"	June 3	58.03
Jos. Schoonmaker	"	June 30	11.03
Pat J. Kelly	"	July 20	65.90
Bert Muir	"	July 25	60.60
Nich. Ganz	"	Aug. 9	61.10
Geo. Ashley	"	Aug. 12	65.10
Fred. Engeholm	"	Oct. 1	80.20
Stephen Beebe	"	Oct. 23	77.15
Timothy Leary	"	Nov. 30	67.15
Elliot King	"	Dec. 27	29.00
E. J. Fitzpatrick	"	Sept. 3	78.45
			$983.26

The above resignations and discharges relieved the Pension Fund of the liability for 165 years of accumulated service.

As during previous years, the resignations were due to the fact that the advance in wages in war industries tempted many of the members to leave the Park.

During the year the following new members were received, after having fulfilled the requirements of the rules, and having been examined by the physician appointed by the Board, Dr. Gilbert J. Van der Smissen, who has rendered valuable services:

Howard Engeholm	Millie Foster
Josephine Schlosser	Frank Renner

The funds of the Pension Board Income Account at the end of the year, and expendable in the payment of pensions, amount to $48,498.67, as against $37,627.11 at end of last year, showing an increase of $10,871.56.

Of this increase during 1918, $1,838.80 was received as interest on investments, $2,930.73 came from dues paid by members, and $8,000.00 came from the New York Zoological Society.

The Fund at the present time has 135 members, of whom 113 are employed in the New York Zoological Park and 22 in the New York Aquarium.

In view of the accumulated funds in the Income Account now available for pensions, and the large number of resignations which have taken place, the Board respectfully suggests that it may now be time to have a new survey made, with a view

to rescinding the suspension of Sec. 15 of the regulations governing the Fund, relating to the subscribing employee's widow's pension, and of Sec. 17, relating to the pensioning on account of death resulting from injuries received in line of duty.

Respectfully submitted,

HERMANN W. MERKEL,
Secretary, Pension Board.

TROPICAL RESEARCH STATION

Bartica District, British Guiana.

REPORT FOR THE YEAR 1918.

William Beebe, Director; Inness Hartley, Research Associate;
John Tee-Van, Artist and Preparateur.

ALFRED EMERSON, a graduate student in zoology of Cornell University, has recently been added to the staff as Research Assistant.

While no field work was possible under war conditions, Beebe and Tee-Van spent all the time available in a careful review of past collections and of zoological literature for records of the higher vertebrates of British Guiana, resulting in a preliminary check-list that will be published in *Zoologica* early in 1919. This will be a valuable basis for work in the jungle during the coming year.

In the preparation of these lists it was realized as never before, how complete is our ignorance of most of the amphibians, reptiles and mammals of this Colony. The references are scanty and for the most part consist merely of a description of spirit specimens or dried skins of adults, often of only one sex. The courtship and breeding habits, the young, food, methods of offence and defence, voice, color and seasonal changes, enemies, instincts—all these remain to be discovered. From this point of view the field opening before us is a most fascinating one, filled with unexpected discoveries, and the scope of the study of life-histories seems peculiarly appropriate to the workers of a Research Station founded by a Zoological Society. The ultimate results in no way conflict with the field of activity of a museum, but each should complement and be enhanced by the achievements of the other.

The richness of the fauna of the Colony of British Guiana is reflected by a summary of these lists of the higher vertebrates, although they are of the most preliminary character and many

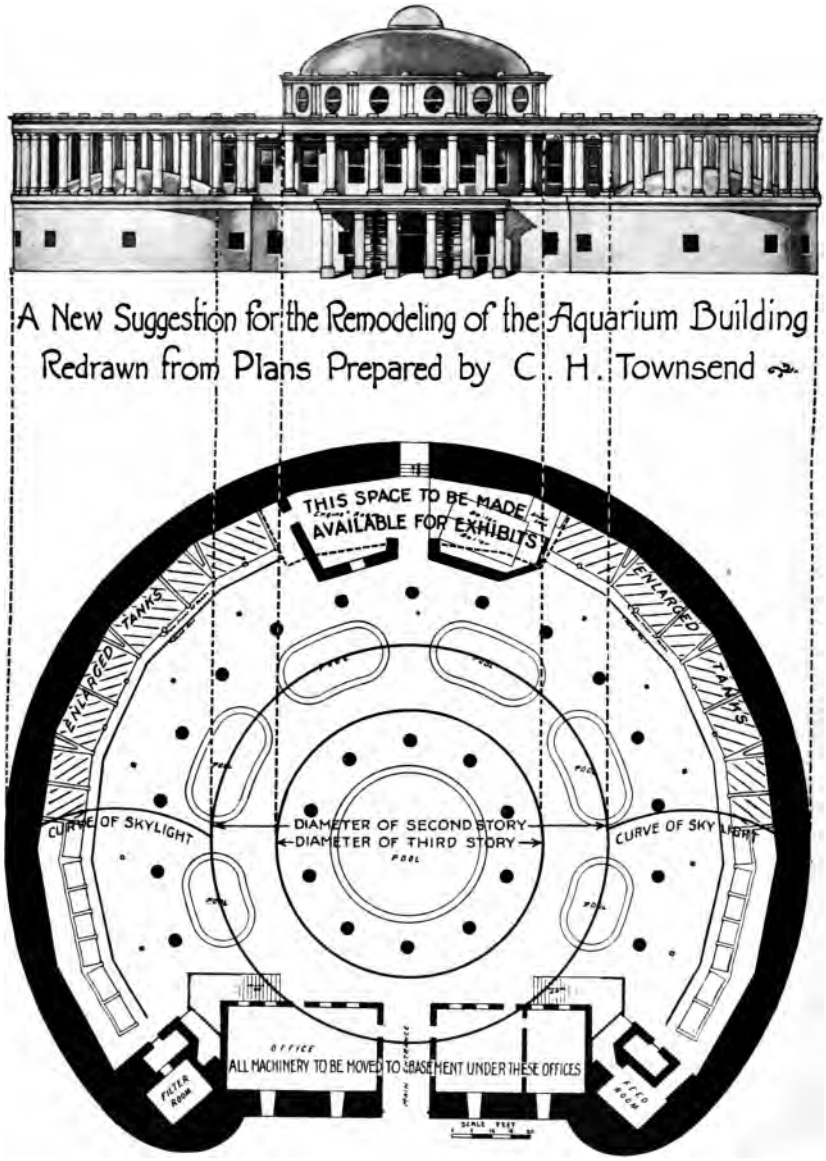
of the groups will probably be doubled in numbers when more thorough search has been carried on. A resume of the list seems well worthy of publication here:

	British Guiana	Bartica District
I. Class AMPHIBIA (Caecilians, Frogs and Toads)	52	35
II. Class REPTILIA	112	54
CHELONIA (Turtles and Tortoises)	11	5
CROCODILIA (Crocodiles)	4	1
LACERTILIA (Lizards)	34	21
OPHIDIA (Snakes)	63	27
III. Class AVES (Birds)		426
IV. Class MAMMALIA	119	48
MARSUPIALIA (Opossums)	10	5
CHIROPTERA (Bats)	36	3
CARNIVORA (Jackals, Raccoons, Otters and Cats)	16	12
RODENTIA (Agoutis, Porcupines, Rats and Mice)	27	8
EDENTATA (Sloths, Anteaters and Armadillos)	8	8
PRIMATES (Monkeys)	99	5
ARTIODACTYLA (Peccaries and Deer)	8	4
PERISSODACTYLA (Tapirs)	1	1
SIRENIA (Sea-cows)	1	1
ODONTOCETI (Dolphins and Whales)	3	1

Large numbers of species, both of vertebrates and invertebrates were identified during the year, all past notes were rearranged and a very complete laboratory outfit planned and assembled for work in the jungle. The most important publication of the present year dealing with the work of the last two expeditions was a volume of essays written by the Director and published by Henry Holt under the title of "Jungle Peace." As a medium of advertisement for the Station it has proved a success, passing through six editions within three months.

An expedition will start south early in the spring of 1919, and the Station be reopened for the year on its new and permanent site, known as Katabo. Several bungalows and a large laboratory have been placed at the disposal of the Station at Katabo,

which is a point of land at the junction of the Mazaruni and the Cuyuni Rivers. The buildings are shaded by a magnificent grove of bamboos upwards of a hundred feet in height, while the jungle begins at the very doors. A number of well-known scientific men will take advantage of this opportunity to visit the jungle and carry on their researches during the summer and autumn.



A New Suggestion for the Remodeling of the Aquarium Building
Redrawn from Plans Prepared by C. H. Townsend

Face page 87

ERRATA

PAGE 95 Second paragraph. Read 448 for 447.

PAGE 104 Carps. After Zebra Fish, etc., insert LOACHES - Cobitidae, and read Dojo for Doja.

PAGE 104 Catfishes. African Catfish. Read *CLARIAS* species, for species undertermined.

PAGE 110-111 From Surgeonfishes to Sea Bats belongs at the end of the list of salt water tropical fishes on page 116.

PAGE 116 From Turtles to end of page 117 should follow turtles on page 113.

REPORT OF THE

DIRECTOR OF THE AQUARIUM

TO THE BOARD OF MANAGERS

THE position occupied by the New York Aquarium among the public museums of the City is not an enviable one. Confined within its century-old walls and limited in exhibition space to the original one hundred tanks, its growth is restrained as effectively as that of a crustacean unable to molt its old shell. Normal development, such as has attended the other city museums, has been denied it in spite of the fact that in visitors it is far in the lead.

Various plans submitted for its improvement from time to time have been approved—*and placed on file.* The present outlook is no brighter than it was before the war.

A material increase in exhibition space is possible without encroachment on the limited territory of Battery Park, while the daily operation of the mechanical department is still conducted under conditions verging on the intolerable. A disadvantage of long standing is a fire room subject to serious flooding during the neap and spring tides of each month.

At such times the firemen wear rubber hip boots and shovel wet coal into the furnaces from half submerged wheelbarrows. When coal wagons arrive at such times it necessitates the delay of wagons and men until the tide ebbs, entailing serious additional expense, at the rate of $3.80 a day with each coal trimmer's time charged against the Aquarium. During a recent high tide the wagon and four men were detained an hour and a half.

On April 11, the water rose to within two and a half inches of the furnace grate bars. Three inches more of rise would have put out the fires and stopped all pumps. This perpetually harassing condition can be corrected only by the removal of the entire mechanical department to the unused basement at the landward side of the building, where it can be protected from tbe sea tides. It is a change which has so far been urged without effect.

The difficulties connected with the care and proper management of the antiquated and worn-out comfort room can be remedied only by modernizing the present antiquated equipment and extending it to the full capacity of the space available. This should be done without delay, as present conditions are a reproach to the institution.

The administrative work of the Aquarium is carried on without the space necessary for effectiveness. The office space is limited, while feed room, repair room, and storage room are all mere make-shifts.

The external appearance of the Aquarium has long been the subject of unfavorable comment. Its light, modern superstructure, already weakened by the cutting of skylights at various times, should be replaced by something more in keeping with heavy walls of a building originally constructed as a fort.

In this report the director refrains from entering into details respecting the many needs of the building, all of which have been considered at length in previous reports.

The remedy for the general retardation of the Aquarium lies in the shifting of all machinery to an unused basement, the conversion of the space thus vacated into exhibition tanks, and the addition of a third story for administrative purposes.

Repairs to Roof.—An appropriation of $3,000 for long-needed repairs to the roof was made in 1917, but the work was, unfortunately, not commenced during that year. In 1918 this amount was reduced to $943.50 for temporary repairs and the work is in progress.

Increased Coal Storage.—The most important improvement effected during the year was the construction of an additional coal bin of sixteen tons' capacity. The space for the coal was created by excavating under the tiled floor of the main hall, just in front of the pump room. The fuel now stored there is held as a reserve supply, not to be drawn upon except in emergency. The appropriation for this improvement was $770. The main coal storage space has not been enlarged and at best holds only a four days' supply.

Stored Sea Water.—The filling of the recently enlarged exhibition tanks with sea water, naturally had the effect of lowering the level in the reservoir holding the supply of stored sea water.

It was altogether impossible during the summer to secure the use of a water boat to renew the supply. This was not accomplished until December, and at more than three times the former cost. The water is obtained far enough out at sea to be free from the pollutions which render the water of the harbor unfit for aquarium purposes.

Coal Shortage in January.—The Aquarium was closed to visitors from January 18 to 28 inclusive, in compliance with the orders of the Fuel Administrator. Only enough fuel was used to keep the pumps in operation and to warm water for the tropical collections. There was a saving in coal amounting to about fifty per cent. The employes were on duty and kept warm by engaging in vigorous house-cleaning.

Exhibits.—The total number of specimens now in the Aquarium is 3,925, and the number of species 156. These figures as compared with those of the same date of the preceding year, show a decrease in specimens on exhibition of 2,124 and of species 30. Of fishes there are 2,628 specimens and 113 species; invertebrates 1,094 specimens and 17 species; amphibians, 105 specimens and 9 species; reptiles, 96 specimens and 15 species; and one mammal, a sea lion.

The decrease has been chiefly in fishes, owing to the collecting of fewer specimens. The exhibits of all aquariums are collected directly from the waters, there being no purveyors of aquatic animals.

The collecting work of the employes was unusually difficult in 1918, owing to conditions resulting from the war and from the epidemic of influenza. The transportation of tanks of specimens by rail and by boat was hampered in various ways, while the movements of small fishing boats about the harbor were under many restrictions. The transportation of tropical fishes was so uncertain that one of the customary shipments from Florida was omitted altogether.

A reduction in the number of employes, and later, illness from influenza, served further to retard the usual work of collecting. An interruption of the field work of a public aquarium necessarily results in decreased exhibits.

Tropical Fishes.—The additions to this exhibit were fewer than usual owing chiefly to difficulties in transportation by steamer and to increased expense. In bringing these fishes from Flor-

ida the Aquarium accepted the proffered co-operation of the Aquariums in Boston and Detroit. While the shipments were large, the share of specimens for the New York Aquarium was of course smaller, the only advantage being a materially lessened cost.

Sea Horses.—The Aquarium lost its collection of sea horses during the winter and was for several reasons unable to procure more specimens of this perpetually interesting fish. Owing to the unusual accumulation of ice on all local sea-beaches it was impossible to obtain for the sea horses the *Amphipod* crustacea on which they feed. They require live food and perish without it.

Capture of Ocean Sunfish.—Early in June the Aquarium received and lost on the same day a specimen of the rare Ocean Sunfish, which might have lived indefinitely could it have been transported without injury. Having no collecting boat with a water compartment, this specimen, which weighed 165 pounds, had to be crowded into a tank too small for it, and brought by motor truck from Sheepshead Bay. It could not survive the journey, although in perfect condition when caught.

Fish Hatchery.—This exhibit, established many years ago to show methods in fish culture, is always of interest to visitors. The eggs of fishes hatched during the year were: yellow perch, 150,000, collected in local waters by Aquarium employes; pike perch, 500,000, and whitefish, 500,000, donated by U. S. Bureau of Fisheries; smelt, 3,000,000, and yellow perch, 2,000,000, donated by N. Y. Conservation Commission. The young fry were deposited in public waters in New York and New Jersey. Many of the yellow perch were deposited in Prospect Park Lake, Brooklyn.

Specimens exchanged.—Exchanges of miscellaneous fishes were made with the Detroit Aquarium, and of food fishes with the New Jersey Fish and Game Commission. The Aquarium loaned 75 native food fishes to the New Jersey Commission for exhibition at the State Fair at Trenton in September, receiving at the close of the Fair 127 fishes, collected by the State Commission. Most of the large trout now on exhibition were received from the New York and New Jersey Commissions.

Aid to Schools and Teachers.—The Aquarium has continued as in past years to supply small forms of marine life to teachers for maintaining small aquaria in public schools. Nearly 700

AN OLD VIEW OF THE INTERIOR OF THE NEW YORK AQUARIUM

Photograph showing the character of the interior wooden framework of the Aquarium building. These timbers are now concealed by the present ceiling and plaster-encased columns

Face page 91

specimens from the reserve tanks of the Aquarium were distributed during the year to twenty schools which requested them. Several thousand children in classes accompanied by their teachers visited the Aquarium during the year.

Live Fishes at the Food Show.—At the request of the U. S. Bureau of Fisheries the Aquarium exhibited live fishes at the Food Show held in the Grand Central Palace, June 14-22. Four large aquaria were sent, containing white perch, yellow perch, bowfin and carp, the Bureau being engaged in exploiting these abundant but rather neglected food fishes.

Loss of Manatee.—The Amazon Manatee (*Manatus inunguis*), which had lived in the Aquarium over two years, was lost in July. When dissected at the Museum it presented the extraordinary abnormality of having two distinct stomachs.

Game Fish Trophies.—The Racquet and Tennis Club of New York has presented to the Aquarium six mounted specimens of large game fishes, comprising two tarpons, two tunas, a sail-fish and a California yellow-tail.

Annual Reception.—The annual reception at the Aquarium on the evening of May 6, to members of the Zoological Society, was attended by 315 persons. A recent addition to the collection of tropical fishes added to the interest of the occasion. Music and refreshments were provided, as at former receptions.

Reception to the American Fisheries Society.—On the evening of September 10, the American Fisheries Society, then holding its forty-seventh annual meeting in New York, was invited to a smoker at the Aquarium, as guests of the Zoological Society. One hundred and nine persons were present, and refreshments were provided. Motion pictures illustrative of fish culture and methods of the commercial fisheries were shown. This important organization has a nation-wide membership of 760. The New York meeting was devoted largely to the vital subject of the ever-increasing pollution of the waters.

Navy Recruiting Station.—During the spring and summer an enclosed space on the main floor of the Aquarium was placed at the service of the Navy Deparment for recruiting purposes. The naval officer in charge examined 539 applicants for enlistment. Permission was granted the department to display within

the building numerous framed posters advertising the need of men for the Naval Service.

Fourth Liberty Loan.—The general committee in charge of the work of soliciting subscriptions came to the Aquarium on two occasions, accompanied by a Naval band.

Employes.—Two members of the Aquarium staff who volunteered for military service in 1917, are still in the Army, and a third was granted a year's leave of absence without pay, in order to take a position at the shipyards.

The number of employes is now reduced to twenty-three, as compared with twenty-eight at the commencement of the war in 1914. Two employes of the Aquarium, who had been many years in the service, were pensioned, having become incapacitated.

Illustrated Guide to the Aquarium.—The manuscript and illustrations for a guide to the Aquarium have been placed in the hands of the printer. The preparation of a guide was commenced several years ago. It was taken up later and set aside for several reasons. There were difficulties to be surmounted before suitable photographs could be made. These were finally overcome after prolonged experimentation. The building being too dark for the use of the instantaneous shutter, methods of artificial lighting had to be worked out.

The photographing of objects moving in water and behind glass presented other difficulties, so that the accumulation of a large series of really good pictures took considerable time and involved the rejection of a large number of photographs which were too dim or out of focus.

Meanwhile it was hoped that improvements in the equipment of the building, which were very slowly being made, would result in increasing the variety of species exhibited, so that a really comprehensive account would be possible.

The improvements are still far from complete, but with a new water system and larger tanks the collections have been made as representative as is possible in the one hundred tanks available. It is still quite impossible to keep most of the invertebrates of local waters, and will remain so until a cold sea-water system is provided. Under present limitations the exhibits of the Aquarium must consist chiefly of fishes.

The guide will be a pocket-size book of about 175 pages, with a good half-tone cut at the top of each page. It will contain brief accounts of 350 of the fishes and other aquatic forms most frequently to be seen there. Had it been issued when first proposed, it could not have been anything like as comprehensive in character.

A Book of Views.—This pamphlet, entitled *Inmates of the Aquarium,* has been on sale since August, 1916. It is appreciated by the public and more than half of the edition of 5,000 copies has been sold.

Attendance.—A few months after the beginning of the war in Europe the record of attendance showed that the number of visitors to the Aquarium was falling off. This decrease continued to the end of the present year, except for a slight increase in 1917. The attendance for 1918 was 1,450,609, a decrease of 144,509 from that of the preceding year, and the lowest in the history of the Aquarium. The lessened number of visitors, however, is indicated by the attendance record only, there being no noticeable decrease in the size of the throng in the building from day to day. The daily average for the year was 3,964.

ATTENDANCE AT THE AQUARIUM BY MONTHS, 1918.

January	visitors	62,647	Daily	average	2,021
February	"	63,614	"	"	2,272
March	"	105,089	"	"	3,389
April	"	125,028	"	"	4,164
May	"	148,055	"	"	4,776
June	"	150,462	"	"	5,014
July	"	170,932	"	"	5,514
August	"	178,574	"	"	5,760
September	"	157,713	"	"	5,256
October	"	80,436	"	"	2,594
November	"	91,469	"	"	3,048
December	"	116,590	"	"	3,761
Total	"	1,450,609	"	"	3,964

Record of monthly mean temperatures and specific gravities at the New York Aquarium during the year 1918 (from daily observations made by Mr. W. I. DeNyse).*

*Density observations were made with samples of water brought to a temperature of 60° Fahr.

Harbor Water—Temperature and Density.

	Temperature	Specific Gravity
January	37°	1.016
February	36°	1.015
March	39°	1.010
April	43°	1.010
May	51°	1.011
June	59°	1.013
July	63°	1.014
August	69°	1.015
September	69°	1.015
October	62°	1.015
November	56°	1.013
December	48°	1.013

MAINTENANCE OF THE AQUARIUM FROM 1903 TO 1918 INCLUSIVE.

Year		*Year*	
1903	$46,500.00	1911	$48,000.00
1904	46,500.00	1912	48,500.00
1905	45,000.00	1913	47,345.00
1906	45,000.00	1914	47,000.00
1907	45,000.00	1915	47,000.00
1908	45,000.00	1916	47,000.00
1909	46,000.00	1917	47,000.00
1910	46,000.00	1918	48,632.50

The total maintenance for 16 years amounted to $745,477.50.

The maintenance appropriation for the year 1919 has been reduced to $45,000.

Complete List of Aquarium Exhibits.—A list of all the forms of aquatic life exhibited at the Aquarium since its inception, has been prepared by Miss Mellen and follows this report. The total number of species listed is 567.

Respectfully submitted,

CHARLES HASKINS TOWNSEND, *Director.*

THE SHIPWORM (*Teredo navalis*) is enormously destructive to the timbers of wharves and the hulls of vessels. Pieces of wood completely filled with shipworms are often to be seen in the tanks of the Aquarium

THE SEA BASS (*Centrovristes striatus*) is an important local food fish. Large specimens weigh four or five pounds. Specimens have lived in the Aquarium two years

(*Hitherto unpublished photographs made in the Aquarium*)

COMPLETE LIST OF EXHIBITS AT THE NEW YORK AQUARIUM

Vertebrates and Invertebrates Shown since the Opening of the Building, December 10, 1896.

By IDA M. MELLEN.

The Ninth Annual Report contained a partial list of the vertebrates exhibited at the Aquarium during the year 1904; and in the Seventeenth Annual Report a longer list was published, showing the vertebrates exhibited from 1896 to 1912.

The list here presented, revised from records kept by Mr. W. I. DeNyse, shows the species of animals, both vertebrate and invertebrate, exhibited at the Aquarium during the twenty-two years of its existence. It comprises more than a hundred species of invertebrates, and 447 species of vertebrates of which 361 are fishes.

Written records have not been kept of the length of life of invertebrates in captivity, but under present conditions most are comparatively short-lived. White anemones have survived two years in balanced aquaria, as have also clam worms. Lobsters and horse shoe crabs have lived three years in captivity. Mollusks survive longest of all invertebrates, mud snails, sea mussels and oysters having lived five years or more. The installation of a cold sea water system would undoubtedly add not only to the length of invertebrate life in the tanks, but to the longevity of many of the northern marine fishes.

The dates of receipt and loss of vertebrate specimens are carefully recorded, and it is interesting to note the hardihood of some species of native fishes, of both fresh and salt water, as the garpikes, that have survived twenty years in captivity, the bowfin eighteen years, the striped bass nineteen years. Our large sea lion, despite lack of sunshine in which all the seal family love to bask, and though subject to the ills that mammalian flesh is generally heir to, has been with us for eleven years. A nine and a half foot Florida alligator that recently died, had passed thirteen years in one of the floor pools, and expired at last from

injuries received in battle with one of its companions. This specimen was adult when received, not having increased in length while in the Aquarium. The longevity of turtles is well known, and though the leatherback does not long survive captivity, one of our Pacific Green turtles thrived for fifteen years, and a loggerhead, after fourteen years' captivity, was returned to the ocean.

THE FRESH-WATER DRUM (*Aplodinotus grunniens*) is found from the Great Lakes to Texas. It is used for food and large specimens may weigh as much as forty pounds. Specimens have lived in the Aquarium two years

THE SPANISH HOGFISH (*Harpe rufa*), which comes from Florida and the West Indies, has a very showy coloration. being violet red above and yellowish orange below. Specimens have lived in the Aquarium two years

(Hitherto unpublished photographs made in the Aquarium)

INVERTEBRATES

(*Salt water except when otherwise specified*)

SPONGES

Finger sponge	*Chalina oculata*
Red Beard	*Microciona prolifera*
Boring sponge	*Cliona sulphurea*
Sulphur sponge	*Suberites compacta*

COELENTERATES

Sea Plume	*Obelia commissuralis*
Hydroid	*Hydractinia polyclina*
Hydroid	*Tubularia indivisa*
Brown anemone	*Metridium marginatum*
Crimson anemone	*Tealia crassicornis*
White anemone	*Sagartia leucolena*
Sand anemone	*Halocampa producta*
Stout-armed anemone	*Condylactis gigantea*
Bermuda anemone	*Actinia mesembryanthemum*
Long-armed anemone	*Actinia anguicorma*
Striped anemone	*Sagartia luciae*
Common northern coral	*Astrangia danae*
Rose coral	*Meandra labyrinthiformis*
Rose coral	*Mussa dipsacea*
Star coral	*Astrea argus*
Purple Sea Fan	*Gorgonia flabellum*
Jelly-fish	*Aurelia flavidula*
Jelly-fish	*Cyanea arctica*
Portuguese Man-of-War	*Physalia arethusa*

BRYOZOA

Lace Coralline	*Membranipora pilosa*
Red Crust	*Escharella variabilis*
False Coral	*Discosoma nidita*
Moss animals (fresh water)	*Pectinatella magnifica*

ECHINODERMS

Brittle Star	*Ophiopholis aculeata*
Blood Starfish	*Cribrella sanguinolenta*

Basket Starfish ..... *Astrophyton agassizii*
Sand Dollar ..... *Echinarachnius parma*
Starfish ..... *Asterias forbesii*
Red Starfish ..... *Pentaceros reticularis*
Sea Urchin ..... *Arbacia punctulata*
Mud Starfish ..... *Ctenodiscus crispatus*
Sea Cucumber ..... *Thyone briareus*

ANNELIDS

Mason worm ..... *Cistenides gouldii*
Sea Mouse ..... *Aphrodite aculeata*
Clam worm ..... *Nereis virens*
Sabella microphthalma
Serpula dianthus

MOLLUSKS

Coat-of-Mail Shell ..... *Chiton apiculatus*
Tulip Conch ..... *Fasciolaria tulipa*
Giant Conch ..... *Fasciolaria gigantea*
Sand-collar snail ..... *Lunatica heros*
Sand-collar snail ..... *Neverita duplicata*
Jingle shell ..... *Anomia glabra*
Boat Shell ..... *Crepidula fornicata*
Cod clam ..... *Cardita borealis*
Sand-bar clam ..... *Siliqua costata*
Surf clam ..... *Mactra solidissima*
Bloody clam ..... *Argina pexata*
Razor clam ..... *Solenensis americana*
Swimming clam ..... *Solenomya velum*
Edible Whelk ..... *Buccinum undatum*
Sedge mussel ..... *Modiola plicatula*
Horse Mussel ..... *Modiola modiolus*
Edible mussel ..... *Mytilus edulis*
Oyster ..... *Ostrea virginiana*
Scallop ..... *Pecten irradians*
Ship worm ..... *Teredo navalis*
Hard-shell clam ..... *Venus mercenaria*
Soft-shell clam ..... *Mya arenaria*
Mud snail ..... *Nassa obsoleta*
Channelled whelk ..... *Sycotypus canaliculatus*
Knobbed whelk ..... *Fulgar carica*
Squid ..... *Loligo pealii*
Octopus ..... *Octopus americanus*
Periwinkle ..... *Littorina littorea*
Oyster Drill ..... *Urosalpinx cinerea*
Rock snail ..... *Purpura lapillus*

Potomac snail (fresh water)	*Viviparus viviparus*
Japanese snail (fresh water)	*Viviparus malleatus*
Fresh-water mussel	*Anodonta implicata*

CRUSTACEANS

Whale barnacle	*Coronula diadema*
Common rock barnacle	*Balanus balanoides*
Ivory barnacle	*Balanus eburneus*
Goose barnacle	*Lepas anatifera*
Silver shrimp	*Palaemonetes vulgaris*
American lobster	*Homarus americanus*
Locust lobster	*Scyllarides aequinoctialis*
Spiny lobster	*Panulirus argus*
Guinea-chick lobster	*Panulirus guttatus*
Horseshoe crab	*Limulus polyphemus*
Land Crab	*Gecarcinus lateralis*
Land Hermit crab	*Cenobites diogenes*
Hermit crab	*Eupagurus pollicaris*
Hermit crab	*Eupagurus longicarpus*
Red Hermit crab	*Petrochirus bahamensis*
Fiddler crab	*Gelasimus pugilator*
Fiddler crab	*Uca minax*
Rock crab	*Cancer irroratus*
Blue crab	*Callinectes hastatus*
Stone crab	*Menippe mercenaria*
Ghost crab	*Ocypoda arenaria*
Spider crab	*Libinia emarginata*
Spider crab	*Libinia dubia*
Mud crab	*Panopaeus depressus*
Green crab	*Carcinus granulatus*
Lady crab	*Platyonychus occellatus*
Long-armed spider crab	*Lambrus pourtalesii*
Oyster crab	*Pinnotheres ostreum*
Bermuda sand crab	*Calappa flamma*
Gulf-weed crab	*Portunus sayi*
Red crab	*Carpilius corallinus*
Jonah crab	*Cancer borealis*
Turtle crab	*Nautilograpsus minutus*
Sand shrimp	*Crangon vulgaris*
Mantis shrimp	*Squilla empusa*
Sand Bug	*Hippa talpoida*
Sand Flea	*Orchestia agilis*
Sand Flea	*Talorchestia longicornis*
Wood Borer or Gribble	*Limnorea lignorum*
Salt water shrimp	*Gammarus locusta*
Fresh-water Crayfish	*Cambarus affinis*

INSECTS

Mosquito larvae (various species) ..... *Culex*

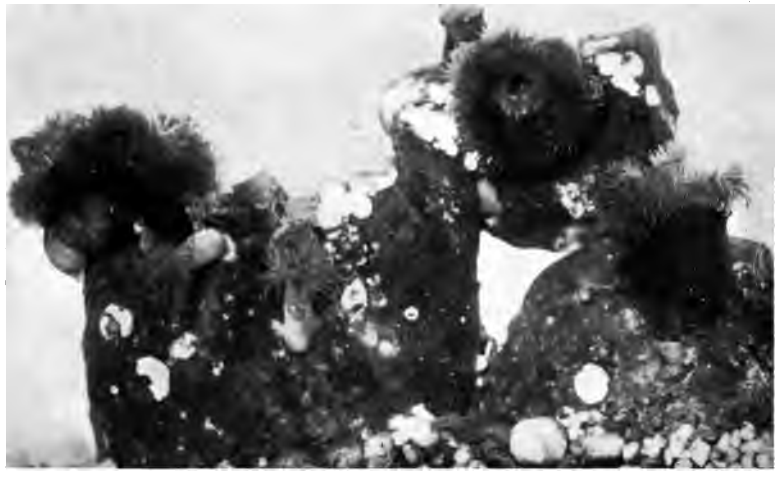
NOTE—Various pond animals such as clams, snails, sponges, beetles, bugs, insect larvae, crustaceans, polypes, etc., have been kept in the laboratory from time to time (chiefly for the use of school teachers with their classes), as also small salt water forms,—snails, nudibranch mollusks, chiton, brittle stars, etc., too numerous for minuter detail.

TUNICATES

(*Intermediate between Vertebrates and Invertebrates*)

Tunicate ..... *Ciona intestinalis*
Common sea-squirt ..... *Molgula manhattensis*
Sea-pork ..... *Amaroecium constellatum*
Star-Spangled Jelly ..... *Botryllus gouldii*

An amphibian of comparatively recent discovery is the Texas Blind Salamander (*Typhlomolge rathbuni*) which comes from subterranean waters through the artesian well of the United States Fisheries Bureau at San Marcos, Texas. It is four inches long, colorless, and totally blind. Specimens have been kept in the Aquarium more than a year.



The Brown Anemone (*Metridium marginatum*) is collected by the Aquarium in considerable numbers, being one of the species supplied to teachers for stocking small marine aquaria in the public schools.

(*Hitherto unpublished photographs made in the Aquarium*)

VERTEBRATES

FISHES (*Pisces*)

Fresh Water—Local

GANOIDS.

(Fishes with Plates)

	LIVED IN AQUARIUM
BROOK LAMPREYS—LAMPETRA.	
Brook Lamprey, *Lampetra wilderi*	6 months
PADDLEFISH—POLYODONTIDAE.	
Paddle-fish, *Polyodon spathula* (Received in poor condition)	1 week
STURGEON—ACIPENSERIDAE.	
Lake Sturgeon, *Acipenser rubicundus*	4 years
GARS—LEPISOSTEIDAE.	
Common or Long-nosed Garpike, *Lepisosteus osseus*	20 years
Short-nosed Garpike, *L. platostomus* (still living)	20 years
Alligator Gar, *L. tristoechus* (Received in poor condition)	2 weeks
BOWFIN—AMIIDAE.	
Bowfin or Mudfish, *Amiatus calva* (still living)	18 years

TELEOSTS.

(Bony Fishes)

CATFISHES—SILURIDAE.	
Channel or Spotted Cat, *Ictalurus punctatus*	5 years
Mississippi Cat, *Ameiurus lacustris*	5 years
White Cat, *A. catus*	2 years
Horned Pout or Bullhead, *A. nebulosus*	2 years
Albino Cat, sp. not determined, probably *A. nebulosus*	2 years
Yellow Cat, *A. natalis*	3 years
Mud Cat or Flathead, *Leptops olivaris*	3 years
SUCKERS—CATOSTOMIDAE.	
Red-mouth Buffalo, *Ictiobus cyprinella*	1 year
Brook or Common Sucker, *Catostomus commersonii*	2 years

Chub Sucker, *Erimyzon sucetta* (still living)	6 months
Red-horse Sucker, *Moxostoma aureolum* (still living)	2 years
Eastern Carp Sucker, *Carpiodes cyprinus*	1 year
Quillback, *C. velifer*	3 years
CARPS AND MINNOWS—CYPRINIDAE.	
Carp, *Cyprinus carpio* (still living)	6 years
Mirror Carp, *C. carpio,* var.	4 years
Leather Carp, *C. carpio,* var.	4 years
Goldfish, *Carassius auratus* (in numerous varieties)	10 years
Common Tench, *Tinca tinca*	3 years
Golden Tench, *T. tinca,* var.	3 years
Golden Ide, *Idus idus*	3 years
Stone-roller, *Campostoma anomalum*	1 year
Chub or Fall-fish, *Semotilus atromaculatus*	6 months
Common Roach or Golden Shiner, *Abramis crysoleucas* (still living)	7 years
Rudd or Pearl Roach, *Scardinius erythropthalmus* (still living)	10 years
Redfin, *Notropis umbratilis*	2 years
Silver Dace or Shiner, *N. cornutus*	2 years
Black-nosed Dace, *Rhinichthys atronasus*	5 years
Rosy-sided Minnow, *Leuciscus vandoisulus*	8 months
EELS—ANGUILLIDAE.	
*Common Eel, *Anguilla chrysypa*	6 years
Albino Eel, *A. chrysypa*	6 months
SALMON, TROUTS, WHITEFISH AND GRAYLINGS —SALMONIDAE.	
Whitefish, *Coregonus clupeiformis* (Raised from eggs, still living)	6 years
Round Whitefish, *C. quadrilateralis*	5 years
Sault Whitefish, *C. labradoricus*	5 years
*Quinnat Salmon, *Oncorhynchus tschawytscha*	4 years
*Silver Salmon, *O. kisutch*	2 years
*Atlantic Salmon, *Salmo salar*	2 years
Ouananiche, *S. salar, var. ouananiche*	2 years
Landlocked Salmon, *S. salar,* var. *sebago*	3 years
Black-spotted or Cut-throat Trout, *S. clarki*	2 years
Steelhead Trout, *S. gairdneri*	4 years
Rainbow Trout, *S. irideus*	5 years
Brown Trout, *S. fario*	5 years
Swiss Lake Trout, *S. lemanus*	2 years
Lake Trout, *Cristivomer namaycush*	3 years
Albino Lake Trout, *C. namaycush*	3 years
Brook Trout, *Salvelinus fontinalis*	5 years
Golden Trout, *S. aureolus*	3 years

*Found also in salt water.

Hybrid Trout, *S. fontinalis*+*S. fario*	3 years
Hybrid Trout, *S. fontinalis*+*S. aureolis*	6 months
Montana Grayling, *Thymallus ontariensis*, var. *montanus*	1½ years
MUD MINNOWS—UMBRIDAE.	
Eastern Mud Minnow or Rockfish, *Umbra pygmaea*	1 year
PIKES AND PICKERELS—LUCIIDAE.	
Banded Pickerel, *Lucius americanus*	2 years
Eastern or Chain Pickerel, *L. reticulatus*	2 years
Common Pike or Pickerel, *Lucius lucius*	2 years
Muskallunge, *L. masquinongy*	10 years
KILLIFISHES—POECILIIDAE.	
Fresh-water Killifish, *Fundulus diaphanus*	3 years
*Top Minnow, *Gambusia affinis*	1 year
BLIND FISHES—AMBLYOPSIDAE.	
Mammoth Cave Blindfish, *Amblyopsis spelaeus*	2 years
Small Blindfish, *Typhlichthys subterraneus*	1 year
Agassiz's Blindfish, *Chologaster agassizii*	2 years
STICKLEBACKS—GASTEROSTEIDAE.	
Brook Stickleback, *Eucalia inconstans*	4 years
PIRATE PERCHES—APHREDODERIDAE.	
Pirate Perch, *Aphredoderus sayanus*	2 years
SUNFISHES AND BASSES—CENTRARCHIDAE.	
Calico Bass or Black Crappie, *Pomoxis sparoides*	7 years
Crappy, *P. annularis*	3 years
Rock Bass or Red Eye, *Ambloplites rupestris* (still living)	7 years
Warmouth, *Chenobryttus gulosus*	2 years
Small-mouthed Black Bass, *Micropterus dolomieu* (still living)	11 years
Large-mouthed Black Bass, *M. salmoides* (still living)	11 years
Common Sunfish or Pumpkin Seed, *Eupomotis gibbosus*	4 years
Green Sunfish, *Apomotis cyanellus*	
Red-breasted Sunfish, *Lepomis auritus*	3 years
Long-eared Sunfish, *L. megalotis*	3 years
Blue-gill Sunfish, *L. pallidus*	3 years
Black-banded Sunfish, *Mesogonistius chaetodon*	3 years
Mud Sunfish, *Acantharcus pomotis*	8 months
PERCHES—PERCIDAE.	
Pike-Perch or Wall-Eyed Pike, *Stizostedion vitreum*	3 years
Sand Pike or Sauger, *S. canadense*	2 years
Yellow Perch, *Perca flavescens* (still living)	8 years
Johnny Darter, *Boleosoma nigrum*	3 years
Tessellated Darter, *B. nigrum olmstedi* (still living)	2 years

*Found also in salt water.

BASSES—SERRANIDAE.
White Bass, *Roccus chrysops* ..... 3 years

DRUMFISHES OR CROAKERS—SCIAENIDAE.
Fresh-water Drumfish or Sheepshead, *Aplodinotus grunniens* ..... 2 years

SCULPINS—COTTIDAE.
Miller's Thumb, *Uranidea gracilis* ..... 2 years

CODFISHES—GADIDAE.
Burbot, Lawyer or Ling, *Lota maculosa* ..... 5 years

FISHES

Fresh-water—Foreign

TELEOSTS.

(Bony Fishes)

—PANTODONTIDAE.
Butterfly Fish, *Pantodon buchholzi,* from West Africa 2 years

—GYMNOTIDAE.
Electric Eel, *Gymnotus electricus,* from South America (Received in poor condition) ..... 6 months

CARPS—CYPRINIDAE.
Blue carp, *Cyprinus caeruleus,* from Japan ..... 3 years
Zebra Fish, *Danio rerio,* from Ceylon ..... 3 years
Loach (species undetermined), from Europe ..... 2 years
Loach or Doja, *Misgurnus anguillicaudatus,* from Japan (still living) 1½ years

CATFISHES—SILURIDAE.
African Catfish (species undetermined).....(still living) 4 years

—CYPRINODONTIDAE.
Red-spotted Haplochilus, *Haplochilus lineatus,* from India ..... 2 years
Rivulus poeyi, from Brazil ..... 3 years
Gambusia holbrooki, from Florida ..... 2 years
Platypoecilus maculatus, from Mexico ..... 3 years
P. rubra, from Mexico ..... 3 years
P. pulchra, from Mexico ..... 3 years
Rainbow Fish, *Girardinus guppyi,* from Jamaica ..... 3 years
*Mud Eater, *Mollienisia latipinna,* from Florida (still living) 9 months
Mexican Sword-tail *Xiphophorus helleri,* from Mexico 2 years

*Found also in brackish water.

—ANABANTIDAE.
Climbing Perch, *Anabas scandens,* from India (still living) 8 years

—OSPHROMENIDAE.
Paradise Fish, *Polyacanthus viridi-auratus,* from East Indies ..... 4 years
Gourami, *Osphromenus olfax,* from East Indies ..... 4 years
Dwarf Gourami, *Trichogaster lalius,* from East Indies 2 years

CICHLIDS—CICHLIDAE.
Black-banded Chromide, *Cichlasoma nigrofasciata,* from Brazil ..... 1 year
Chancito, *C. hedricki,* from Mexico ..... 3 years
Chancito, *Cichlasoma sp.,* from Mexico ..... 3 years
Acara bimaculata, from Brazil ..... 2 years
Ladder Fish or Brazilian Half-Moon Fish, *Pterophyllum scalare,* from Amazon River ..... 2 years

GOBIES—GOBIIDAE.
Gobius pleurostigma, from Java ..... 5 months
**Boleophthalmus,* sp. from Java ..... 5 months
*Sleeper, *Dormitator maculatus,* from Porto Rico (still living) 10 months

*Found also in brackish water.

FISHES (*Pisces*)

Salt Water—Local

CYCLOSTOMES.

(Lampreys and Hags)

LAMPREYS—PETROMYZONIDAE.
Lamprey Eel, *Petromyzon marinus* ..... 9 months

ELASMOBRANCHS.

(Sharks, Skates and Rays)

REQUIEM SHARKS—GALEIDAE.
Grayfish, *Mustelus canis* ..... 2 years
Blue Shark, *Carcharhinus milberti* (Received in poor condition) ..... 3 weeks

HAMMERHEADED SHARKS—SPHYRNIDAE.
Hammerhead Shark, *Sphyrna zygaena* (Received in poor condition) ..... 1 week

SAND SHARKS—CARCHARIDAE.
Sand Shark, *Carcharias littoralis* ..... 2 years

DOG-FISHES—Squalidae.	
Horned Dogfish, *Squalus acanthius*	6 months
SKATES—Rajidae.	
Common Skate, *Raja erinacea*	2 years
Big Skate, *R. ocellata*	6 months
Barndoor Skate, *R. laevis*	8 months
ELECTRIC RAYS—Narcobatidae.	
Torpedo or Electric Ray, *Tetronarce occidentalis* (Received in poor condition)	2 weeks
STING RAYS—Dasyatidae.	
Sting Ray or Stingaree, *Dasyatis centrura*	3 months
Butter-fly ray, *Pteroplatea maclura*	7 months
EAGLE RAYS—Myliobatidae.	
Cow-nosed Ray, *Rhinoptera bonasus*	5 months

GANOIDS.

(Fishes with Plates)

STURGEONS—Acipenseridae.	
*Common Sturgeon, *Acipenser sturio*	6 years
*Short-nosed Sturgeon, *A. brevirostrum*	7 years

TELEOSTS.

(Bony Fishes)

CATFISHES—Siluridae.	
Gaff-topsail Catfish, *Felichthys marinus*	2 years
Sea Catfish, *Hexanematichthys felis* (still living)	7 years
CONGER EELS—Leptocephalidae.	
Conger Eel, *Leptocephalus conger*	1 year
TARPONS—Elopidae.	
Tarpon, *Tarpon atlanticus*	2 months
Big-Eyed Herring or Tenpounder, *Elops saurus*	1 week
LADY-FISHES—Albulidae.	
Bone Fish, *Albula vulpes*	
HERRINGS, Clupeidae.	
*Hickory Shad, *Pomolobus mediocris*	10 months
*Alewife, *P. pseudoharengus*	2 months
*Glut Herring, *P. aestivalis*	2 months
*Shad, *Alosa sapidissima*	2 months
*Thread Herring, *Opisthonema oglinum*	A few days
Menhaden, *Brevoortia tyrannus*	2 years
ANCHOVIES—Engraulididae.	
Anchovy, *Stolephorus mitchilli*	1 year

*Found also in fresh water.

SMELTS—ARGENTINIDAE.	
*Smelt, *Osmerus mordax*	6 months
KILLIFISHES—POECILIIDAE.	
Bass Killifish or Mayfish, *Fundulus majalis*	6 months
Common Killifish, *F. heteroclitus*	4 years
Variegated Minnow or Sheepshead Lebia, *Cyprinodon variegatus*	2 years
Rainwater-fish, *Lucania parva*	2 months
NEEDLEFISHES—BELONIDAE.	
Billfish or Silver Gar, *Tylosurus marinus*	1 week
BALAOS—HEMIRHAMPHIDAE.	
Common Halfbeak, *Hyporhamphus roberti*	1 week
STICKLEBACKS—GASTEROSTEIDAE.	
Nine-Spined Stickleback, *Pygosteus pungitius*	2 years
Four-Spined Stickleback, *Apeltes quadracus*	4 years
Two-Spined Stickleback, *Gasterosteus bispinosus*	2 years
PIPEFISHES—SYNGNATHIDAE.	
Common Pipefish, *Siphostoma fuscum*	6 months
SEA HORSES—HIPPOCAMPIDAE.	
Sea-Horse, *Hippocampus hudsonius*	2½ years
SILVERSIDES—ATHERINIDAE.	
Silverside or Spearing, *Menidia notata*	2 years
MULLETS—MUGILIDAE.	
Common Mullet, *Mugil cephalus*	1 year
BARRACUDAS—SPHYRAENIDAE.	
Northern Barracuda, *Sphyraena borealis*	4 months
SAND LANCES—AMMODYTIDAE.	
Sand Lance or Sand Eel, *Ammodytes americanus*	1 week
GOAT FISHES—MULLIDAE.	
Goatfish or Red Mullet, *Mullus auratus*	3 weeks
MACKERELS—SCOMBRIDAE.	
Common Mackerel, *Scomber scombrus*	4 months
Chub Mackerel, *S. colias*	3 months
Bonito, *Sarda sarda*	3 months
PAMPANOS—CARANGIDAE.	
Rudder-fish or Pilot-fish, *Seriola zonata*	5 months
Crevalle or Jack, *C. hippos*	5 years
Yellow Mackerel or Runner, *C. chrysos*	4 years

Silver Moonfish, *Selene vomer*	5 years
Common Pampano, *Trachinotus carolinus*	4 years
Round Pampano, *T. falcatus*	4½ years
Pilotfish, *Naucrates ductor*	2 years
Goggler or Big-Eyed Scad, *Trachurops crumenophthalmus*	6 months
Threadfish, *Alectis ciliaris*	3 months
Moonfish or Blunt-nosed Shiner, *Vomer setipinnis*	3 years
BLUEFISHES—POMATOMATIDAE.	
Bluefish, *Pomatomus saltatrix*	2½ years
SERGEANT FISHES—RACHYCENTRIDAE.	
Cobia or Crab Eater, *Rachycentron canadus*	6 months
RUDDER-FISHES—CENTROLOPHIDAE.	
Rudder-fish, *Palinurichthys perciformis*	6 months
FIATOLAS—STROMATEIDAE.	
Butterfish, Dollar-fish, or Harvestfish, *Rhombus triacanthus*	2 months
Long-finned Harvestfish, *R. paru*	1 month
SEA BASSES—SERRANIDAE.	
Striped Bass or Rockfish, *Roccus lineatus*	19 years
*White Perch, *Morone americana*	(still living) 7 years
Black Sea-bass, *Centropristes striatus*	2 years
TRIPLE TAILS—LOBOTIDAE.	
Triple tail or Flasher, *Lobotes surinamensis*	2 months
PORGIES—SPARIDAE.	
Scup or Porgy, *Stenotomus chrysops*	4 years
Pinfish, *Lagodon rhomboides*	2 years
CROAKERS—SCIAENIDAE.	
Sea-drum, *Pogonias cromis*	6½ years
Weakfish or Squeteague, *Cynoscion regalis*	5 years
Sea-Trout, *C. nebulosus*	3 weeks
Yellow-tail or Silver Perch, *Bairdiella chrysura*	6 months
Channel Bass or Red Drum, *Sciaenops ocellatus*	7 years
Spot or Lafayette, *Leiostomus xanthurus*	2 years
Kingfish, *Menticirrhus saxatilis*	6 months
Banded Larimus, *Larimus fasciatus*	6 months
WRASSE FISHES—LABRIDAE.	
Tautog or Blackfish, *Tautoga onitis*	8 years
Cunner or Bergall, *Tautogolabrus adspersus*	4 years
PUFFERS—TETRARODONTIDAE.	
Puffer or Swellfish, *Spheroides maculatus*	2 years

*Found also in fresh water.

PORCUPINE FISHES—DIODONTIDAE.	
Spiny Boxfish or Burrfish, *Chylomycterus schoepfi*	3 years
HEAD FISHES—MOLIDAE.	
Ocean Sunfish, *Mola mola* (Received in poor condition)	1 hour
SCULPINS—COTTIDAE.	
Grubby or Mitchill's Sculpin, *Myoxocephalus aeneus*	6 months
Eighteen-spined Sculpin, *M. octodecimspinosus*	6 months
Sea Raven, *Hemitripterus americanus*	6 months
LUMP SUCKERS—CYCLOPTERIDAE.	
Lumpfish, *Cyclopterus lumpus*	2 months
GURNARDS—TRIGLIDAE.	
Common Sea Robin, *Prionotus carolinus*	1 year
Striped Sea Robin or Gurnard, *P. strigatus*	6 months
Southern Striped Sea Robin, *P. evolans*	3 months
GOBIES—GOBIIDAE.	
Naked Goby or Oysterfish, *Gobiosoma bosci*	1 year
REMORAS—ECHENEIDIDAE.	
Shark Sucker or Remora, *Echeneis naucrates*	2 years
STAR GAZERS—URANOSCOPIDAE.	
Stargazer, *Astroscopus guttatus*	6 months
TOADFISHES—BATRACHOIDIDAE.	
Common Toadfish, *Opsanus tau*	5 years
BLENNIES—BLENNIDAE.	
Rock Eel, *Pholis gunnellus*	2 weeks
EEL POUTS—ZOARCIDAE.	
Eel Pout, *Zoarces anguillaris*	6 months
CUSK EELS—OPHIDIIDAE.	
Slippery Dick, *Rissola marginata*	3 years
HAKES—MERLUCCIIDAE.	
Whiting or Silver Hake, *Merluccius bilinearis*	6 months
CODFISHES—GADIDAE.	
Pollack, *Pollachius virens*	6 months
Tomcod or Frostfish, *Microgadus tomcod*	6 months
Common Cod, *Gadus callarias*	6 months
Haddock, *Melanogrammus aeglefinus*	6 months
Spotted Codling, *Urophycis regius*	6 months
White Hake, *Phycis tenuis*	6 months
Squirrel Hake, *P. chuss*	6 months

FLOUNDERS—PLEURONECTIDAE.	
Summer Flounder or Fluke, *Paralichthys dentatus*	6 months
Four-Spotted Flounder, *P. oblongus*	6 months
Winter Flounder, *Pseudopleuronectes americanus*	1 year
Windowpane or Star Flounder, *Lophopsetta maculata*	6 months
SOLES—SOLEIDAE.	
American Sole or Hog-Choker, *Achirus fasciatus*	1 year
ANGLERS—LOPHIIDAE.	
Common Angler or Goosefish, *Lophius piscatorius*	6 months
Sargasso-fish or Mouse-fish, *Pterophryne histrio*	2 weeks
SURGEONFISHES—TEUTHIDIDAE.	
Blue Tang, *Teuthis caeruleus*	1 year
Surgeonfish, *T. hepatus*	5 years
Yellow Surgeonfish, *T. helioides*	2 weeks
TRIGGER-FISHES—BALISTIDAE.	
Ocean Turbot, *Canthidermis maculatus* (still living)	3 years
Common Triggerfish, *Balistes carolinensis*	5 years
Queen Triggerfish, *B. vetula*	3 years
FILE FISHES—MONACANTHIDAE.	
Massachusetts Filefish, *Monacanthus hispidus*	2 years
Leatherfish, *M. ciliatus*	1 year
Orange Filefish, *Alutera schoepfi*	3 years
Unicorn Fish, *A. scripta*	6 months
TRUNK FISHES—OSTRACIIDAE.	
Trunkfish, *Lactophrys triqueter*	2 years
Cowfish, *L. tricornis*	2 years
Buffalo Trunkfish, *L. trigonus*	1 year
PUFFERS—TETRARODONITIDAE.	
Smooth Puffer or Rabbitfish, *Lagocephalus laevigatus*	10 months
Southern Puffer, *Spheroides spengleri*	1 year
Sharp-nosed Puffer, *Canthigaster rostratus*	1 year
PORCUPINE FISHES—DIODONOTIDAE.	
Porcupine Fish, *Diodon hystrix*	4 months
ROCK-FISHES—SCORPAENIDAE.	
Lion Fish, *Scorpaena grandicornis*	2 years
Scorpion Fish, *S. plumieri*	2 years
FLYING GURNARDS—CEPHALACANTHIIDAE.	
Flying Sea Robin, *Cephalacanthus volitans*	1½ years
BLANQUILLOS—MALACANTHIIDAE.	
Sand Fish, *Malacanthus plumieri*	1¼ years

BLENNIES—BLENNIIDAE.	
Molly Miller, *Blennius cristatus*	1 year
Molly Miller, *Salariichthys textilis*	1 year
SEA-BATS—OGCOCEPHALUS.	
Bat-Fish, *Ogcocephalus vespertilio*	6 months
Short-nosed Bat-Fish, *O. radiatus*	4 months

AMPHIBIANS

(Toads, Frogs, Salamanders)

SPADEFOOT TOADS—PLEOBATIDAE.	
Hermit Spadefoot, *Scaphiopus holbrookii*	6 months
TOADS—BUFONIDAE.	
American Toad, *Bufo americanus* (Raised from eggs)	1 year
Fowler's Toad, *B. fowleri*	6 months
—PIPIDAE.	
Surinam Toad, *Pipa americana*	6 months
FROGS—RANIDAE.	
Bull Frog, *Rana catesbiana*	2 years
Salt-marsh Frog, *R. virescens*	8 months
Pickerel Frog, *R. palustris*	8 months
Leopard Frog, *R. pipiens*	2 years
Green Frog, *R. clamata*	2 years
Wood Frog, *R. sylvatica*	
TREE FROGS—HYLIDAE.	
Tree Frogs, species not determined	1 year
Spring Peeper, *Hyla pickeringii*	3 months
Florida Tree Frog, *H. gratiosa*	1 year
SALAMANDERS—SALAMANDRIDAE.	
—PROTEIDAE.	
Mud Puppies, *Necturus maculatus*	5 years
Blind Salamander, *Typhlomolge rathbuni*	1 year
Blind Proteus, *Proteus anguinas*	1½ years
—CRYPTOBRANCHIDAE.	
Water Dog or Hellbender, *Cryptobranchus allegheniensis*	6 years
Giant Salamander of Japan, *C. maximus*.....(still living)	10 years
—AMBLYSTOMIDAE.	
Shasta Salamander from California, *Chondrotus tenebrosus*	1½ years
Blotched or Marbled Salamander, *Amblystoma opacum*	3 years
Axolotl, *A. mexicanum*	2 years
Spotted Salamander, *A. punctatum*	2 years
Tiger Salamander, *A. tigrinum*	2 years
European Newt, *Triton vulgaris*	8 months

—PLETHODONTIDAE.
Red Salamander, *Spelerpes ruber* ..... 1 year
Slimy Salamander, *Plethodon glutinosus* ..... 1 year
Gray Salamander, *P. cinereus* ..... 1½ years
—PLEURODELIDAE.
Common Newt, *Diemyctylus viridescens* ..... 3 years
Asiatic Red-bellied Newt, *Molge pyrrhogastra* ..... 1½ years
Red-bellied Salamander, *Diemyctylus torosus* ..... 1½ years
—AMPHIUMIDAE.
Congo Eel, *Amphiuma means* ..... 5 years
—SIRENIDAE.
Siren, *Siren lacertina* ..... 2 years

REPTILES

(Crocodiles, Alligators, Turtles, Snakes)

CROCODILES AND ALLIGATORS (Crocodilia).

Florida Crocodile, *Crocodilus americanus* ..... 9 years
Indian Crocodile, *Crocodilus sp.* ..... 2 years
Florida Alligator, *Alligator mississippiensis* ..... 13 years

TURTLES (Chelonia).

Fresh Water and Terrestrial

SNAPPING TURTLES—CHELYDRIDAE.
Snapping Turtle, *Chelydra serpentina* ..... (still living) 7 years
Alligator Snapping Turtle, *Macrochelys lacertina* (still living) 5 years

MUSK AND MUD TURTLES—CINOSTERNIDAE.
Musk Turtle, *Aromochelys odoratus* ..... 3 years
Mud Turtle, *Cinosternum pennsylvanicum* ..... 3 years

SIDE-NECK OR SNAKE-NECKED TURTLES—CHELYDIDAE.
Matamata, *Chelys fimbriata* ..... 1½ years
Amazon Side-Necked Turtle, *Hydraspis maximilianii* 3 months

TURTLES, TERRAPINS AND TORTOISES—TESTUDINIDAE.
Painted or Pond Turtle, *Chrysemys picta* ..... 2 years
Western Painted Turtle, *C. marginata* ..... 2 years
Yellow-bellied Terrapin, *C. scabra* ..... 2 years
Red-bellied Terrapin, *C. rubriventris* ..... 2 years
Cumberland Turtle, *C. elegans* ..... 2 years
Cuban Turtle, *C. scripta*, var. *rugosa* ..... 1 year
Geographic or Map Turtle, *Malacoclemys geographica* 2 years
Diamond-back Terrapin, *M. centrata concentrica* ..... 3 years
Lesueur's Terrapin, *M. lesueurii* ..... 1 year
Albino Texan Turtle, *M. littoralis* ..... 1 year
Slider Terrapin, *Pseudemys rugosa* .....

THE SPOTTED CODLING (*Phycis regius*) is rather rare in New York waters. It is the only striking fish of the cod family, having a heavily marked lateral line, broken by fourteen conspicuous white spots. Specimens have been kept in the Aquarium six months

M/CH

THE AXOLOTL (*Amblystoma tigrinum*) is a large salamander inhabiting part of the central United States and extending to the Mexican lakes where it is used for food. The above specimen is the albino form bred in captivity. Specimens have lived in the Aquarium four years.

(*Hitherto unpublished photographs made in the Aquarium*)

Reeve's Turtle, *Damonia reevesi* (From Eastern Asia)	1 year
Spotted Turtle, *Chelopus guttatus*	2 years
Muhlenberg's Turtle, *C. muhlenbergii*	2 years
Wood Turtle, *C. insculptus*	2 years
Blanding's Turtle, *Emys blandingii*	3 years
Box Tortoise, *Cistudo carolina.* Kept 4 years and then sent to Zoo.	
African Box Tortoise, *Cynixis sp.*	
Gopher Tortoise, *Testudo polyphemus.* Kept 1¼ years and then sent to the Zoo.	
European Tortoise, *T. graeca*	
Radiated Tortoise, *T. radiata.* Kept 1¼ years and then sent to Zoo.	
SOFT-SHELLED TURTLES—TRIONYCHIDAE.	
Soft-shelled Turtle, *Trionyx spinifer*	5 years
Southern Soft-shelled Turtle, *T. ferox*	1 year
—PELOMEDUSIDAE.	
Amazon Turtle, *Podocnemis expansa*	1 year

FISHES (*Pisces*)

Salt Water—Tropical

(From Florida and the Bermudas) [1]

ELASMOBRANCHS.

(Sharks, Skates and Rays)

NURSE SHARKS—GINGLYMOSTOMIDAE.	
Nurse Shark, *Ginglymostoma cirratum*	2 years
STING RAYS—DASYATIDAE.	
Round Sting Ray, *Urolophus jamaicensis*	5 months

TELEOSTS.

(Bony Fishes)

MORAYS—MURAENIDAE.	
Spotted Moray, *Lycodontis moringa* (still living)	4 years
Yellow-spotted Moray, *L. miliaris*	3 months
Brown Moray, *Lycodontis sp.*	1 year
Green Moray, *L. funebris*	5 years
Striped Moray, *Channomuraena vittata*	3 months
BARRACUDAS—SPHYRAENIDAE.	
Great Barracuda, *Sphyraena barracuda*	1 year

[1] Some of these tropical fishes wander north in summer and are taken in local waters.

SQUIRREL FISHES—HOLOCENTRIDAE.	
Squirrel Fish, *Holocentrus ascensionis*	5 years
Squirrel Fish, *Myropristes siccifer*	1 week
PAMPANOS—CARANGIDAE.	
Amberfish, *Seriola lalandi*	2 years
Bonito or Madregal, *S. falcata*	2 weeks
Horse-eye Jack, *Caranx latus*	6 months
Neverbite, *C. ruber*	6 months
Runner or Leatherjacket, *Oligoplites saurus*	3 weeks
CARDINAL FISHES—CHEILODIPTERIDAE.	
Marine Goldfish, *Apogon sellicauda* (Received in poor dition)	1 week
ROBALOS—CENTROPOMIDAE.	
Snook, *Centropomus undecimalis*	4 months
SEA BASSES—SERRANIDAE.	
Graysby or Coney, *Petrometopon cruentatus*	2 years
Yellow Coney or Butterfish, *Bodianus fulvus*	3 years
Coney or Butterfish, *B. fulvus*, var. *ruber*	3 years
Coney or Butterfish, *B. fulvus*, var. *punctatus*	3 years
Red Grouper, *Epinephelus morio*	7 years
Red Hind, *E. maculosus*	3 years
Rock Hind, *E. adscencionis* (still living)	3 years
Nassau Grouper, *E. striatus*	7 years
Spotted Jewfish, *Promicrops guttatus* (still living)	7 years
Red Niggerfish or Butter-hamlet, *Alphestes chloropterus*	6 months
Yellow-finned Grouper, *Mycteroperca venenosa*	5 years
Black Rockfish, *M. bonaci* (still living)	5 years
Scamp, *M. phenax*	2 years
Tiger Rockfish, *M. tigris*	5 years
Cardinal Rockfish, *M. venenosa apua*	5 years
Salmon Rockfish, *M. falcata*	3 years
Princess Rockfish, *M. olfax*	4 years
Gag, *M. microlepis*	3 years
Marbled Hamlet, *Dermatolepis marmoratus*	1 year
Sand Grouper, *Prionodes tigrinus*	6 months
Butter Hamlet, *Hypoplectrus puella*	1 year
Soapfish, *Rypticus bistrispinus* (still living)	3 years
TRIPLE TAILS—LOBOTIDAE.	
Sandfish, *Diplectrum formosum*	8 months
CATALUFAS—PRIACANTHIDAE.	
Catalufa or Glass-Eye, *Priacanthus arenatus*	4½ mnoths
Redfish, *Pseudopriacanthus altus*	16 months

SNAPPERS—LUTIANIDAE.		
New Snapper, *Neomaenis ambiguus*		6 months
Gray Snapper, *N. griseus*		7 years
Dog Snapper, *N. jocu*		2 years
Schoolmaster, *N. apodus*		3 years
Muttonfish, *N. analis*		3 years
Red Snapper, *N. aya*		2 years
Spot or Lane Snapper, *N. synagris*		7 years
Black-finned Snapper, *N. hastingsi*		8 months
Yellow-tail, *Ocyurus chrysurus*		4 years
GRUNTERS—HAEMULIDAE.		
Gray Grunt, *Haemulon parra*		2 years
Golden Grunt, *H. chrysopterum*		1½ years
Black-Tailed Grunt, *H. melanurum*		1 year
Margate, *H. album*		3 years
Black Grunt, *H. bonariense*		2 years
White or Common Grunt, *H. plumieri*		2 years
Yellow Grunt, *H. flavolineatum*		2 years
Blue-striped Grunt, *H. sciurus*		5 years
Bronze Grunt, *Brachygenys chrysargyreus*		8 months
Black Margate, *Anisotremus surinamensis*		1 year
Porkfish, *A. virginicus*		1 year
Pigfish or Sailor's Choice, *Orthopristis chrysopterus*		3 years
Tom Tate, or White Grunt, *Bathystoma striatum*		2 years
PORGIES—SPARIDAE.		
Little-head Porgy, *Calamus proridens*		1 year
Jolthead Porgy, *C. bajonado*		1 year
Saucer-Eye Porgy, *C. calamus*		1½ years
Grass Porgy, *C. arctifrons*		1½ years
Sheepshead, *Archosargus probatocephalus*		6 years
Salema, *A. unimaculatus*		2 years
Bream, *Diplodus argenteus*		1 year
MOJARRAS—GERRIDAE.		
Broad Shad, *Xystaema cinereum*		8 months
RUDDER FISHES—KYPHOSIDAE.		
Bermuda Chub or Rudder-Fish, *Kyphosus sectatrix*		2 years
CROAKERS—SCIAENIDAE.		
Cubbyu, *Eques acuminatus*		2 years
Ribbon-Fish, *E. lanceolatus*		2 months
Croaker, *Micropogon undulatus*	(still living)	2 years
DEMOISELLES—POMACENTRIDAE.		
Brown Gregory, *Eupomacentrus fuscus*	(still living)	3 years
Beau Gregory, *E. leucostictus*		3 years
Sergeant Major, *Abudefduf saxatilis*		2 years

WRASSE FISHES—LABRIDAE.

Hogfish, *Lachnolaimus maximus*	2 years
Spanish Hogfish, *Harpe rufa*	2 years
Pudding Wife or Doncella, *Iridio radiatus*	8 months
Doncella, *I. garnoti*	8 months
Kelpfish, *I. meyeri*	8 months
Slippery Dick, *I. bivittatus*	1 year
Reef Fish, *Thalassoma nitidum*	6 months
Bluehead, *T. bifasciatus*	1 year

PARROT FISHES—SCARIDAE.

Red Parrot, *Sparisoma abildgaardi*	1 year
Green Parrot, *S. viride*	2 years
Mud Parrot, *S. flavescens*	1 year
Scotch Porgy, *S. hoplomystax*	6 months
Rainbow Parrot, *Pseudoscarus guacamaia*	2 years
Large Blue Parrot, *P. plumbeus*	8 months
Blue Parrot, *Scarus vetula*	1 year
Blue Parrot, *S. caeruleus*	1 year
Harbor Parrot, *S. croicensis*	1 year
Rosy-sided Parrot, *S. punctulatus*	6 months

SPADE FISHES—EPHIPPIDAE.

Spadefish, *Chaetodipterus faber* (still living)	5 years

BUTTERFLY FISHES—CHAETODONITIDAE.

Butterfly Fish, *Chaetodon ocellatus*	2 years
Four-Eyes, *C. capistratus*	1 year
Black Angel, *Pomacanthus arcuatus* (still living)	3 years
French Angel, *P. paru* (still living)	3 years
Blue Angel, *Angelichthys isabelita*	5 years
Queen Angel, *Angelichthys ciliaris*	1 year
Yellow-Tail Angel, *A. townsendii* (still living)	2 years

TURTLES (Chelonia).

Salt Water

TRUNK TURTLE—SPHARGIDAE.

Leatherback or Trunk Turtle, *Sphargis coriacea*	3 weeks

GREEN, HAWK'S BILL AND LOGGERHEAD TURTLES—CHELONIDAE.

Loggerhead Turtle, *Thalassochelys caretta*. Kept 14 years and then set free.	
Hawk's Bill Turtle, *Chelonia imbricata*	3¾ years
Atlantic Green Turtle, *C. mydas*	6 years
Pacific Green Turtle, *C. virgata*	15 years

SNAKES (Ophidia).

Common Water Snake, *Tropidonotus fasciata,* var. *sipedon* ..... 1 year

BIRDS

BIRDS (Aves).

Loon, *Urinator imber.* Kept for a few weeks and then sent to the Zoo.
Penguin, *Spheniscus humboldti* (?) ..... 5 months
Brown Pelican, *Pelecanus fuscus.* Kept for a few weeks, when it escaped.

MAMMALS

(Whales, Sea Cows, Seals)

WHALES—CETACEA.
White Whale, *Delphinapterus leucas* ..... 7 weeks
Dolphin, *Delphinus delphis* (Received in poor condition) ..... 2 weeks
Dusky Dolphin, *Lagenorhynchus sp.* ..... 2 days
Bottle-nosed Porpoise, *Tursiops truncatus* ..... 1¾ years
SEA COWS—SIRENIA.
Manatee or Sea Cow, *Manatus latirostris* ..... 1½ years
Amazon Manatee, *M. inunguis* ..... 2 years
SEALS—PINNIPEDIA.
Harbor Seal, *Phoca vitulina* ..... 8 years
Harp Seal, *P. groenlandica* ..... 3 months
Alaska Fur Seal, *Callorhinus alascanus* ..... 8 months
West Indian Seal, *Monachus tropicalis* ..... 5 years
Elephant Seal, *Macrorhinus angustirostris* ..... 9 months
California Sea Lion, *Zalophus californianus* (still living) 11 years
BEAVERS—CASTORIDAE.
North American Beaver, *Castor canadensis* ..... 2 months

Treasurer's Report

FOR THE YEAR ENDING DECEMBER 31, 1918.

RECEIPTS AND EXPENDITURES

OF THE

Income Account

Schedule 1.

Unexpended balance as of December 31, 1917:			
Available for expenditure during 1918		$10,954.74	
Investments:			
$3,000 New York, Lackawanna & Western Terminal 4% Bonds		2,970.00	$13,924.74
RECEIPTS.			
Annual Dues		$17,120.00	
Sustaining Memberships		400.00	
Transfer from Endowment Fund Income Account		16,533.56	
Interest on bank balances		621.08	
Interest on investments		120.00	
Heads and Horns (publications and labels)		1.00	
Special Subscriptions:			
Archer M. Huntington	$1,000.00		
American Museum Natural History	466.66		
Miscellaneous	4.00	1,470.66	36,266.30
			$50,191.04
EXPENDITURES.			
Annual and separate reports		$ 3,003.10	
Bulletin		3,379.90	
Photographs and slides		788.09	
Zoologica		103.50	
Cost of distribution of publications		94.40	
Expenses, Annual Meeting		811.00	
Expenses of receptions		910.01	
Treasurer's office expenses		1,600.00	
General office expenses		4,325.70	
Audit of accounts		600.00	
Liability insurance		1,281.30	
Salary of Secretary		5,000.00	
Aquarium expenses		375.81	
Office supplies and printing		2,316.42	
Aquarium specimens		960.19	
Aid to employees		1,580.00	
Pension Fund Income Account		3,665.00	
Pheasant Monograph		250.00	
Insurance		181.50	
Zoopathologica		507.22	
Employees Co-operative store		235.50	
Aquarium Fund (transfer)		93.61	
Carried forward		$32,062.25	

Brought forward	$32,062.25	
Military service allowance	2,709.53	
Red Cross War Fund	392.00	
Miscellaneous expenses	2,170.02	37,333.80
Unexpended balance as of December 31, 1918:		
Available for expenditure during 1919	10,877.24	
Investments:		
$2,000 New York, Lackawanna & Western Terminal 4% Bonds (one bond sold during year for $990)	1,980.00	12,857.24
		$50,191.04

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Maintenance Fund

ZOOLOGICAL PARK.

FOR THE YEAR 1918, AS OF JANUARY 15, 1919.

Schedule 2.

RECEIPTS.

Received from the City on account of Park Maintenance Appropriation of $207,586.00 for the year	$192,547.30	
Due from the City on account of Park Maintenance Appropriation	15,038.70	$207,586.00

EXPENDITURES.

Maintenance of buildings and care of collections	$60,662.34
Maintenance and care of grounds	52,854.82
General administration	19,795.71
Food for animals	41,430.03
Fuel	13,593.79
Lumber	1,647.59
Paints and oils	1,644.70
Uniforms and miscellaneous wearing apparel	1,575.42
Plumbing repairs	1,122.00
Tools and machinery	864.87
Miscellaneous materials	863.96
Electric service	853.41
Office supplies	831.31
Telephone service	724.57
Steel and iron	656.06
Miscellaneous supplies	643.60
Furnace repairs and replacements	642.13
Fuel oil and gasoline	523.46
Stationery and printing	504.73
Janitors' supplies	499.33
Fencing and netting	478.91
Miscellaneous equipment	461.34
Plumbing materials	438.30
Bolts, nails and hardware	401.16
Sand, cement and brick	368.50
Glaziers' materials	367.50
Carried forward	$204,449.54

Brought forward	$204,449.54	
Expressage and deliveries	324.93	
Motor vehicles and equipment	311.93	
Janitors' equipment	294.18	
Medical attendance, animals	229.00	
Electrical materials	208.49	
Motor vehicle supplies	203.99	
Drugs and medicines	187.31	
Disinfectants	147.60	
Ice	127.80	
Painters' equipment	125.70	
Nursery stock and seeds	118.92	
Rubber hose	116.75	
Apparatus and machinery repairs	105.53	
Medical attendance, employees	99.00	
Nursery supplies	92.95	
Miscellaneous repairs	62.60	
Miscellaneous expenses	49.80	
Painting labels	49.00	
Gas service	48.08	
Motor vehicle materials	44.05	
Lubricating oils	44.02	
Office furniture and fixtures	42.63	
Sanitary service	34.67	
Motor vehicle repairs	26.60	
Mats and floor coverings	19.60	
Harness and vehicle repairs	8.10	
Medical and surgical supplies	6.13	
Medical equipment	3.10	
Awnings and shades	2.60	
Telegraph, cable and messenger service	1.40	$207,586.00

H. R. MITCHELL,
Chief Clerk.
January 15, 1919.

PERCY R. PYNE,
Treasurer.

Ground Improvement Fund

Schedule 3.

1915 GROUND IMPROVEMENT ACCOUNTS.

Unexpended balances as of December 31, 1917:		
Construction of Hospital Building	$ 156.76	
Reconstruction of cages in Elephant House	244.25	$ 401.01
Balances rescinded by the City:		
Construction of Hospital Building	$ 156.76	
Reconstruction of cages in Elephant House	244.25	$ 401.01

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Animal Fund

Schedule 4.

Unexpended balance as of December 31, 1917:			
Cash in bank		$16,463.03	
Cash on hand		100.00	$ 16,563.03
RECEIPTS.			
Special Subscriptions:			
Junior Auxiliary	$ 500.00		
Helen G. Shepard	200.00	700.00	
Zoological Society of Philadelphia		571.42	
Receipts from Park:			
Gate Receipts (Jan. 1 to June 30, 1918)	$ 3,758.95		
Sale of animals	1,523.50		
Checking	21.65		
Aquarium specimens	25.00		
Miscellaneous	80.58		
Privilege Account, account of 1918 receipts	14,000.00		
Boating, account 1918 receipts	3,500.00		
Rocking Stone Restaurant, account 1918 receipts	500.00	23,409.68	24,681.10
			$41,244.13
EXPENDITURES.			
Mammals		$ 3,495.00	
Birds		2,983.40	
Reptiles		263.80	
Insect collection		67.95	6,810.15
Express and other charges		$ 859.44	
Travelling and other expenses		31.33	890.77
Improvement and Repair Account, transfer of Gate Receipts, (Jan. 1 to June 30, 1918)			3,758.95
Unexpended balance as of December 31, 1918:			
Cash in bank		$29,684.26	
Cash on hand		100.00	29,784.26
			$41,244.13

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Stokes Bird Fund

Schedule 5.

Unexpended balance as of December 31, 1917:			
Cash in Bank		$ 258.54	
Investment: $5,000 Illinois Central Railway 4% Gold Bonds		5,056.46	$ 5,315.00
RECEIPTS.			
Interest on investment			200.00
			$ 5,515.00

EXPENDITURES.

Unexpended balance as of December 31, 1918:		
Cash in Bank	$ 458.54	
Investment: $5,000 Illinois Central Railway 4% Gold Bonds	5,056.46	$ 5,515.00

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

National Collection of Heads and Horns

Schedule 6.

Unexpended balance as of December 31, 1917		$ 75.77

RECEIPTS.

Special Subscription:		
John J. Paul		50.00
		$ 125.77

EXPENDITURES.

Heads and horns	$ 5.00	
Express and other charges	13.61	18.61
Unexpended balance as of December 31, 1918		107.16
		$ 125.77

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE.
Treasurer.

Library Fund

Schedule 7.

Unexpended balance as of December 31, 1917		$ 437.80
No receipts during 1918.		

EXPENDITURES.

Subscriptions to periodicals	$ 46.19	
Books, pamphlets, etc.	182.13	228.32
Unexpended balance as of December 31, 1918		$ 209.48
		$ 437.80

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Maintenance Fund

AQUARIUM.

Schedule 8.

RECEIPTS.

Received from the City on account of Aquarium Maintenance Appropriation of $48,632.50 for the year	$ 43,070.06	
Due from the City on account of Aquarium Maintenance Appropriation	5,560.65	$ 48,630.71
Unexpended balance to revert to the City		1.79
		$ 48,632.50

EXPENDITURES.

Salaries and wages	$ 31,767.40	
Forage and veterinary supplies	2,859.14	
Office supplies	148.99	
Laundry, cleaning and disinfecting supplies	150.62	
Refrigerating supplies	124.37	
General plant supplies	330.14	
Office equipment	58.30	
Wearing apparel	22.75	
General plant equipment	1,509.94	
General plant materials	1,398.98	
Repairs	947.68	
Lighting	940.98	
Express and deliveries	284.60	
Telephone service	144.43	
Contingencies	111.10	
Fuel supplies	7,831.29	$ 48,630.71
Unexpended balance to revert to the City		1.79
		$ 48,632.50

A. H. Clendening,
Clerk.

Percy R. Pyne,
Treasurer.

January 20, 1919.

Endowment Fund

Schedule 9.

Funds as of December 31, 1917:		
Cash in Bank	$ 2,740.71	
Investments at cost	366,591.25	$369,331.96
Overdraft, December 31, 1918		369.29

RECEIPTS.

Life Memberships	1,000.00
	$370,701.25

Investments as of December 31, 1918, at cost:		
$20,000 Westchester Racing Association 5½% First Mortgage Bonds	20,000.00	
3,000 Second Mortgage, Clara N. Gibert and others, 6% over land and buildings, Broadway and 17th Street	3,000.00	
Carried forward	$23,000.00	

Brought forward		$23,000.00	
5,000	Colorado & Southern 4% Bonds	4,750.00	
5,000	Michigan Central R. R. Co. 4% Bonds	4,950.00	
10,000	New York City 1957 4% Corporate Stock	9,925.00	
10,000	New York City 1957 4% Corporate Stock	9,962.50	
20,000	New York City 1958 4% Corporate Stock	19,875.00	
10,000	New York City 1958 4% Corporate Stock	9,962.50	
13,400	New York City 1965 4½% Corporate Stock	13,651.25	
10,000	St. Paul, Minneapolis & Manitoba 4% Bonds	9,800.00	
50,000	U. S. Steel Sinking Fund 5% Bonds	51,812.50	
50,000	American Telephone & Telegraph 4% Bonds	45,000.00	
25,000	Rhode Island Suburban Ry. Co. 4% Bonds	21,250.00	
20,000	Chicago & Northwestern Ry. Co. General Mortgage 4% Bonds	19,750.00	
20,000	Vandalia Railroad Co. Consolidated Mortgage 4% Bonds	19,400.00	
5,000	Missouri & Illinois Bridge & Belt R.R. Co. 1st Mortgage 4% Bonds	5,000.00	
10,000	Chicago, Milwaukee & Puget Sound 1st Mortgage 4% Bonds	9,525.00	
12,000	Chicago, Milwaukee & Puget Sound 1st Mortgage 4% Bonds	11,250.00	
8,000	New York, Lackawanna & Western 4% Terminal Improvement Bonds	7,920.00	
20,000	Milwaukee, Sparta & Northwestern 1st Mortgage 4% Bonds	18,900.00	
25,000	New York & Westchester Lighting Co. General Mortgage 4% Gold Coupon Bonds	19,750.00	
1,000	Morris & Essex R.R. 3½% Bond	876.25	
5,000	Illinois Central and Chicago, St. Louis & New Orleans 5% Bonds	5,000.00	
9,000	Baltimore & Ohio (Pittsburgh, Lake Erie & West Virginia) Ry. 4% Refunding Bonds	7,920.00	
9,000	Lehigh Valley Terminal 5% Bonds	9,090.00	
3,000	Central Railroad of New Jersey 5% Bonds	3,031.25	
7,000	United New Jersey R.R. & Canal 4% Bonds	6,230.00	
4,000	Baltimore & Ohio 1st Mortgage 4% Bonds	3,120.00	$370,701.25

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Endowment Fund Income Account

Schedule 10.

RECEIPTS.

Interest collected from Endowment Fund Investments	$ 16,578.00
	$ 16,578.00

EXPENDITURES.

Accrued interest on bonds at time of purchase	44.44
Transferred to Income Account	16,533.56
	$ 16,578.00

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Cadwalader Animal Fund

Schedule 11.

Unexpended balance as of December 31, 1917:		
Cash in Bank	$ 1,500.00	
Investment: $20,000 (at par) Illinois Central & Chicago, St. Louis & New Orleans joint 5% Bonds	20,000.00	$ 21,500.00
Interest on investment		1,000.00
		$22,500.00
EXPENDITURES.		
Purchase of animals		$ 725.00
Unexpended balance as of December 31, 1918:		
Investment: $20,000 (at par) Illinois Central & Chicago, St. Louis & New Orleans joint 5% Bonds	$20,000.00	
Cash in Bank	1,775.00	21,775.00
		$22,500.00

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Wild Life Fund

Schedule 12.

Unexpended balance as of December 31, 1917		$ 869.01
RECEIPTS.		
Sale of "Our Vanishing Wild Life"		81.00
		$ 950.01
EXPENDITURES.		
Telegraph and express	$ 1.94	
Miscellaneous expenses	18.00	19.94
Unexpended balance as of December 31, 1918		930 07
		$ 950.01

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Improvement and Repair Account

Schedule 13.

RECEIPTS.		
Transferred from Animal Fund, Gate Receipts (Jan. 1 to June 30, 1918)		$ 3,758.95
Gate Receipts (July 1 to Dec. 31, 1918)		5,105.25
		$ 8,864.20
EXPENDITURES.		
Walk repairs	$ 688.92	
Heating repairs	1,056.42	
Miscellaneous	344.22	
Lion House	553.14	2,642.70
Unexpended balance as of December 31, 1918		6,221.50
		$ 8,864.20

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE.
Treasurer.

Carnegie Pension Fund

Schedule 14.

Funds as of December 31, 1917:		
Investments at cost		$100,066.25
Funds as of December 31, 1918:		
Investments at cost:		
$25,000 Philadelphia & Baltimore 1st Mortgage 4% Gold Bonds	$23,250.00	
25,000 Lehigh Coal & Navigation 4½% Bonds	24,875.00	
25,000 Illinois Central 4% Bonds	23,062.50	
5,000 Morris & Essex 3½% Bonds	4,373.75	
25,000 Chicago & Northwestern 4% Bonds	23,687.50	
1,000 Michigan Central 3½% Bond	817.50	$100,066.25

H. R. MITCHELL,
Chief Clerk.

PERCY R. PYNE,
Treasurer.

January 1, 1919.

RECEIPTS AND EXPENDITURES

OF THE

Pension Fund Income Account

Schedule 15.

Uninvested balance as of December 31, 1917:		
Deposited with Farmers' Loan & Trust Co.	$ 3,137.27	
Deposited with Corn Exchange Bank (Bronx)	274.69	
Cash on hand	1.40	$ 3,413.36
Investments at cost		34,213.75
RECEIPTS.		
Interest on bank balances		58.93
Interest on bond investments		1,779.87
Dues collected from Zoological Society Employees		2,970.33
Contributed by New York Zoological Society:		
Interest on Carnegie Pension Fund Investments	$ 4,335.00	
Cash payments, year 1918	3,665.00	8,000.00
		$ 50,436.24
EXPENDITURES.		
Refund of dues with accrued interest to resigning members	$ 918.91	
Pension payments	632.91	
Clerical services	250.00	
Physical examinations (made by Dr. G. J. Van der Smissen)	70.00	
Death benefit	65.75	1,937.57
Investments at cost:		
$5,000 New York City 4½% Bonds	$ 5,093.75	
5,000 Illinois Central & Chicago, St. Louis & New Orleans Ry. joint 5% Bonds	4,981.25	
5,000 Milwaukee, Sault Sainte Marie & Atlantic Ry. first 4% Bonds	4,868.75	
Carried forward	$14,943.75	$ 1,937.57

Brought forward	$14,943.75	$ 1,937.57
4,000 Baltimore & Ohio (Pittsburgh, Lake Erie & West Virginia) Ry. 4% Refunding Bonds	3,520.00	
5,000 Twenty-third Street Improvement & Refunding 5% Bonds	4,825.00	
6,000 United New Jersey Ry. & Canal 4% 1923 Bonds	5,925.00	
5,000 U. S. Government Second Loan 4% Liberty Bonds	5,000.00	
*6,000 Baltimore & Ohio Ry. 1st Mortgage 1948 4% Bonds	4,680.00	
*7,000 Chicago, Milwaukee & St. Paul 4½% Bonds	5,368.75	44,262.50
Uninvested balance as of December 31, 1918:		
Deposited with Farmers' Loan & Trust Co.	4,002.32	
Deposited with Corn Exchange Bank (Bronx)	233.85	4,236.17
		$50,436.24

H. R. MITCHELL,
Asst. to Treas.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

*Purchased during 1918.

Tropical Research Fund

Schedule 16.

Unexpended balance as of December 31, 1917		$ 1,465.63
RECEIPTS.		
Special Subscriptions:		
Andrew Carnegie	$ 1,500.00	
Col. A. R. Kuser	1,500.00	
Mortimer L. Schiff	1,000.00	
C. Ledyard Blair	1,000.00	
A. B. Hepburn	1,000.00	6,000.00
		$ 7,465.63
EXPENDITURES.		
Salary of directing curator and assistant	$ 2,783.30	
Miscellaneous expenses	273.14	3,056.44
Unexpended balance as of December 31, 1918		4,409.19
		$ 7,465.63

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Art Gallery Fund

Schedule 17.

Unexpended balance as of December 31, 1917:		
Available for expenditure during 1918	$ 7,753.21	
Received on account of subscription paid in advance for 1919	250.00	$ 8,003.21
Carried forward		$ 8,003.21

Brought forward		$ 8,003.21
RECEIPTS.		
Special Subscriptions:		
Ogden Mills	$ 500.00	
Henry M. Tilford	500.00	
George F. Baker	500.00	
Andrew Carnegie	500.00	
C. F. Dieterich	500.00	
Frederick G. Bourne	250.00	2,750.00
		$ 10,753.21
EXPENDITURES.		
Oil paintings	$ 3,320.00	
Miscellaneous expenses	11.53	3,331.53
Unexpended balance as of December 31, 1918		7,421.68
		$ 10,753.21

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Publication Fund

Schedule 18.

Unexpended balance as of December 31, 1917		$ 1,075.40
RECEIPTS.		
Sale of "Tropical Wild Life in British Guiana"		536.24
		$ 1,611.64
EXPENDITURES.		
Express and other charges		$ 14.11
Unexpended balance as of December 31, 1918		1,597.53
		$ 1,611.64

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Heads and Horns Building Fund

Schedule 19.

Unexpended balance as of December 31, 1917:		
Investment at cost	$55,000.00	
Cash in Bank	13,983.62	$ 68,983.62
RECEIPTS.		
Special Subscription:		
Jacob H. Schiff		10,000.00
Interest on investment		2,765.00
		$ 81,748.62
Funds as of December 31, 1918:		
Investments at cost:		
$79,000 U. S. Government 3½ % Liberty Bonds	$78,912.81	
1,500.00 U. S. Government 4¼ % Liberty Bonds	1,447.76	80,360.57
Uninvested balance as of December 31, 1918		1,388.05
		$ 81,748.62

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Special Maintenance Fund

Schedule 20.

RECEIPTS.

Special Subscriptions:		
A. B. Hepburn	$ 1,000.00	
Archer M. Huntington	1,000.00	
Andrew Carnegie	1,000.00	
George F. Baker	1,000.00	
Edw. S. Harkness	1,000.00	
Dr. L. R. Morris	500.00	
Wm. Woodward	200.00	$ 5,700.00
Unexpended balance as of December 31, 1918		$ 5,700.00

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

Pheasant Aviary Fund

Schedule 21.

Unexpended balance as of December 31, 1917		$ 141.33
No receipts during 1918.		

EXPENDITURES.

Pheasant aviary		$ 48.12
Unexpended balance as of December 31, 1918		93.21
		$141.33

H. R. MITCHELL,
Chief Clerk.
January 1, 1919.

PERCY R. PYNE,
Treasurer.

MARWICK, MITCHELL, PEAT & CO.
CHARTERED ACCOUNTANTS
79 WALL STREET
NEW YORK

Auditors' Certificate

We have audited the books and accounts of the New York Zoological Society, and of the "Carnegie Pension Fund" for the year ending December 31, 1918, and certify that the foregoing Schedules "1" to "21" are in accordance with the books, and correctly record the transactions relating to the Funds of the Society and the "Carnegie Pension Fund" for the year 1918, and the condition of the 1918 Maintenance Fund Zoological Park as at January 15, 1919, and of the other Funds as at December 31, 1918.

The subscriptions, donations and dues reported as received and the income from investments, have been properly accounted for, and the securities and cash in bank and on hand at December 31, 1918, as shown in the accounts of the Funds presented herewith, have been checked and found in order. Satisfactory vouchers have been produced for all expenditures.

MARWICK, MITCHELL, PEAT & Co.,
Chartered Accountants.

79 Wall Street, New York,
March 5, 1919.

Report of the Auditing Committee

OF THE

NEW YORK ZOOLOGICAL SOCIETY

To the President and Board of Managers
Of The New York Zoological Society:

Dear Sirs:

We beg to report we have examined the annual audit of the books and accounts of the New York Zoological Society for the year ending December 31, 1918, as made by Messrs. Marwick, Mitchell, Peat & Company, Chartered Accountants, and herewith submit the same to you as a complete and satisfactory audit of said books and accounts, including the Carnegie Pension Fund and the Pension Fund and the Pension Fund Income Account, all expenditures and receipts of the various accounts being clearly set forth, and it appearing that the cash on hand and at the various depositories has been verified and found correct, and all securities in which the funds of the Society are invested have been examined and found as reported.

Expenditures made through the Park Department of the City of New York have not been verified by this audit as such moneys have not passed through the hands of this Society, but are in due course checked and verified by the Comptroller of the City.

Respectfully submitted,

WILLIAM WHITE NILES,
Chairman.

LISPENARD STEWART.

List of Accessions, 1918

BY THE ZOOLOGICAL SOCIETY

AT THE ZOOLOGICAL PARK.

BY GIFT.

ANDERSON, AUGUST, Piedmont, Fla.:
Alligator.

AVERY, ELWOOD C., AND EVANGELINE F., Auburn, R. I.:
Opossums (2 specimens).

BAKER, MRS. MARGARET B., Irvington-on-Hudson, N. Y.:
Cinnamon Sapajou Monkey.

BECHTEL, WILLIAM C., New York City:
Red-Billed Hill-Tit.

BECKER, WILLIAM C., New York City:
3 Central American Boas; 1 Rat-Tailed Opossum.

BELL, E. LAYTON, Flushing, L. I.:
1 Copperhead Snake, 1 Black Snake.

BENEDICT, COMMODORE E. C., Greenwich, Conn.:
American Egret.

BIRCHALL, MRS. F. T., New York City:
1 Black-Throated Jay Thrush, 1 Mealy Rosella Parrakeet, 1 Ring-Neck Parrakeet. Total, 3 specimens.

BISHOP, MRS. HEBER R., Mt. Kisco, N. Y.:
Blue-and-Yellow Macaw.

BOYLE, MRS. J., New York City:
Screech Owl.

BROWN, L. COLEMAN, Hartwood, N. Y.:
2 Garter Snakes, 1 Pilot Black Snake, 1 Water Snake. Total, 4 specimens.

BUCHMILLER, KARL, New York City:
Screech Owl.

BUDDE, F. A., New York City:
Tawney Robin.

BURROWS, DR. W. F., Hartsdale, N. Y.:
Pigeon Hawk.

CASCARDO, RAPHAEL, New York City:
Central American Boa.

CASTLE, MRS. VERNON, New York City:
Mexican Red Squirrel.

COLBURN, ALBERT E., Los Angeles, Calif.:
Night Lizards (20 specimens).

COLBURN'S BRANCH STORE, Los Angeles, Calif.:
Leopard Lizard.

COLLINS, CHARLES, New York City:
Screech Owl.

COMPANY G, 53RD PIONEER INFANTRY, Spartanburg, S. C.:
Hog-Nosed Snake.

CONGER, L. H., Greenwich, Conn.:
Peccary.

Cox, Joseph, New York City:
Red-Shouldered Hawk.
Culbertson, J. G., Wichita Falls, Texas:
Coyotes (2 specimens).
Dalton, E., New York City:
Indian Ring-Necked Parrakeet.
Degener, O., New Canaan, Conn.:
1 Skunk, 1 Red Fox.
Dieirlien, John, New Rochelle, N. Y.:
Screech Owl.
Dill, Prof. Homer R., Iowa City, Ia.:
Texas Rattlesnakes (2 specimens).
Doepker, F., New York City:
Canary.
Dorn, Richard, Upper Montclair, N. J.:
Blue Jays (7 specimens).
Dyer, Miss Bridget, Yaphank, L. I.:
American Robin.
Eggeling, Otto, New York City:
4 Box Turtles, 1 Snapping Turtle.
Farina, Salvador Charles, Union Hill, N. J.:
Copperhead Snake.
Fellows, Mrs. May, Brooklyn, N. Y.:
Murine Opossums (2 specimens).
Ferguson, H., New York City:
Sora Rail.
Flieger, Mrs. Otto, New York City:
Yellow-Headed Amazon.
Folsom, C. M., New York City:
Red-Tailed Hawk.
Friedman, Albert, Yonkers, N. Y.:
Herring Gull.
Fuller, John T., Honesdale, Pa.:
Red Coati Mundi.
Garside, Master Ruel, New York City:
Chameleons (2 specimens).
Gillam, A. L., Flushing, L. I.:
1 Timber Rattlesnake, 1 Copperhead Snake.
Gillette, Curt, Jr., New York City.
Prairie "Dog."
Graves, Miss, New York City:
Raccoon.
Griswold, Miss Edna, Garden City, L. I.:
1 Grass Parrakeet, 1 Canary.
Gruss, Miss Catherine, Brooklyn, N. Y.:
12 Garter Snakes, 3 Ring-Necked Snakes, 2 Storer Snakes, 3 Green Snakes, 1 Ribbon Snake, 1 DeKay Snake. Total, 22 specimens.
Hauer, Edward C., Chatham, N. Y.:
American Goshawk.
Havemeyer, T. A., New York City:
3 Crescent Pigeons, 6 White-Tailed Pigeons, 2 Fire-Back Pigeons, 4 Brunner Pouter Pigeons, 1 Magpie Pouter Pigeon, 1 Swift. Total, 17 specimens.
Heide, William F., New York City:
Black Bear Cub.
Hellins, Masters H. and K., New Rochelle, N. Y.:
Alligator.
Higgins, W. S., Brooklyn, N. Y.:
Texas Horned Lizards (2 specimens).

HILLYER, MRS. JAMES R., East Orange, N. J.:
Canaries (2 specimens).
HOFFMAN, WILLIAM, New York City:
Cuban Amazon.
HOGAN, S. A., Hempstead, L. I.:
Screech Owl.
HOUSLI, J. P., Ridgewood, N. J.:
Duck.
IBBEKEN, A., New York City:
Kinkajou.
INGERSOLL, ERNEST, New York City:
Keeled Lizard.
KENNEDY, H., New York City:
Herring Gull.
KEPPLER, MRS. MAX HERMAN, Elizabeth, N. J.:
Alligators (5 specimens).
KIERNAN, FRANCIS K., Utica, N. Y.:
Great Horned Owl.
KISSAM, MRS. MAUDE, New York City:
Canaries (33 specimens).
KLEIN, WILLIAM C., Clifton, N. J.:
2 Horned Grebes, 1 Raccoon, 1 Sparrow Hawk. Total, 4 specimens.
KLOPSTOCK, GEORGE G., New York City:
Diamond-Back Terrapin (2 specimens).
KUSER, MISS CYNTHIA, Bernardsville, N. J.:
Barred Owl.
LEAO, MRS. F. GARCIA, New Orleans, La.:
Canary-Wing Parrakeet.
LEIDNER, MRS. H., New York City:
Guinea Pig.
LOW, MRS. L. P., Greenwich, Conn.:
Weeper Sapajou Monkey.
MCCORMACK, WELLS, Mount Vernon, N. Y.:
Alligator.
MCLEES, FRANK, Rutherford, N. J.:
15 Young Garter and Ribbon Snakes, 2 Black Snakes, 2 Garter Snakes, 1 Milk Snake, 1 Copperhead Snake, 1 Hog-Nosed Snake, 1 Ribbon Snake. Total, 23 specimens.
MACFADDEN, C. K., New York City:
Black-Necked Screamers (2 specimens).
MACKAY, MRS. ROBERT, New York City:
Alligator.
MACNIFF HORTICULTURAL CO., New York City:
2 Golden Eagles, 3 Barred Owls, 1 Red Fox. Total, 6 specimens.
MADSEN, M., New York City:
Java Monkey.
MARCUS, MRS., Hoboken, N. J.:
Alligator.
MEEK, HERBERT K., Brooklyn, N. Y.:
Brown Scorpion.
MORGAN, F. E., Larchmont, N. Y.:
Blue-and-Yellow Macaw.
MULLER, JOHN P., Nyack, N. Y.:
Red-Shouldered Hawk.
MURRAY, MISS NELLIE, Brooklyn, N. Y.:
White-Nosed Coati Mundi.
MURRAY, RALPH STUART, New York City:
Pine Snake.

NEILSON, ROBERT, 3RD, Bronxville, N. Y.:
Green-Cheeked Amazon.
NELSON, NORMAN F., JR., Flushing, L. I.:
Raccoon.
NEW YORK AQUARIUM, New York City:
1 Cook's Tree Boa, 8 Garter Snakes, 2 Ribbon Snakes, 7 Water Snakes. Total, 18 specimens.
NEW YORK STATE CONSERVATION COMMISSION, Albany, N. Y.:
Virginia Deer Fawn.
NOLTING, MRS. A., Far Hills, N. J.:
Yellow-Fronted Amazon Parrot.
OLSEN, DR. W., Ancon, Canal Zone:
Palm Viper.
OVERBAUGH, MRS. C., Grant City, S. I.:
Malabar Squirrel.
PARKER, MRS. RODNEY, New York City:
1 Chaffinch, 1 Greenfinch.
PAULSEN, MRS. BERT, New York City:
Yellow-Headed Amazon Parrot.
PENNELL, DR. FRANCIS, New York City:
Black Spider Monkey.
PHILLIPS, MRS. MARY C., New York City:
Blue-Fronted Amazon Parrot.
POPLITZ, MR., New York City:
Garter Snakes (2 specimens).
PORTEUS, J. C., Randall's Island, N. Y.:
Barred Owl.
PUPILS OF CLASS 7B', P. S. No. 10, New York City:
Spotted Sandpiper.
RATHOM, MRS. JOHN R., Providence, R. I.:
Canaries (3 specimens).
RELIABLE BIRD STORE, New York City:
Red-Tailed Hawk.
REMBECKEL, WILLIAM, Hackensack, N. J.:
Red-Headed Conures (2 specimens).
RICHARDS, MRS. EBEN, New York City:
7 Canaries, 1 Red-Billed Weaver, 1 Russ Weaver, 1 Paradise Whydah, 1 Gray-Headed Lovebird, 1 Undulated Grass Parrakeet. Total, 12 specimens.
ROMAINE, LOUIS, New York City:
Alligator.
SCHMIDT, F. C., New York City:
Homing Pigeon.
SCHTITSER, F., Lee Hall, Va.:
Opossum.
SEEGERS, MISS E., New York City:
Green Monkey.
SHEPARD, MR. AND MRS. FINLEY J., CHILDREN OF, New York City:
Bactrian Camel. Young specimen.
SHIPMAN, MRS. HELEN, New York City:
Roseate Cockatoo.
SHROEDER, MRS. M. T., Philadelphia, Pa.:
White-Throated Sapajou.
SLATER, LELAND S., Cairo, N. Y.:
Cooper's Hawks (2 specimens).
SNAKE KING, W. A., Brownsville, Texas:
1 Green Spotted Snake, 1 LeConte's Snake, 1 Texas Rattlesnake. Total, 3 specimens.
SNYDER, CHARLES E., Scarsdale, N. Y.:
Woodchuck.

SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS, New York City:
American Black Bear.
SPENCER, MISS E. E., New York City:
Tui Parrakeets (2 specimens).
SPROUL, MRS. S., New York City:
Saw-Whet Owl.
STECHT, J. H., New York City:
Opossum.
STUTSMAN, FRANK V., Hackettstown, N. J.:
Black Snake.
SWIDERSKI, PAUL P., New York City:
Gray-Breasted Parrakeet.

TATHORN, CHARLES, JR., New York City:
Green Snakes (2 specimens).
TAYLOR, MRS. W. W., New York City:
Prairie "Dog."
THIEME, PERCIVAL, Montclair, N. J.: :
1 Black Snake, 3 Garter Snakes, 2 Red Salamanders. Total, 6 specimens.
THOMSON, CHARLES A., New York City:
Canary.

UHLENHUTH, DR. E., Woodstock, N. Y.:
Hog-Nosed Snake.
VANDERBILT, CORNELIUS, JR., New York City:
Raccoon.
VAN ESSEN, C., New York City:
Gray Java Sparrow.
VENETIANER, CAPT. EDWARD C., S. S. "Ascutney," New York City:
Polar Bear Cub.
VOLINLER, MRS. H., Newark, N. J.:
Alligator.
VON LENGERKE, J., New York City:
Broad-Winged Hawks (2 specimens).
VON LENGERKE, J., JR., New York City:
Broad-Winged Hawk.
VORHIES, DR. CHARLES T., Tucson, Ariz.:
Red Racer.

WALKER, MRS. ELIZA, Pittsfield, Mass.:
2 Undulated Grass Parrakeets, 5 White Java Sparrows, 4 Gray Java Sparrows, 1 Orange-Cheeked Waxbill, 5 Canaries. Total, 17 specimens.
WEILER, MRS. B., New York City:
Blue-and-Yellow Macaw.
WENZEL, EDWARD, New York City:
Painted Turtle.
WHIFFEN, EDWARD T., New Rochelle, N. Y.:
Black Snakes (4 specimens).
WHITFIELD, MISS FANNIE, Middleburg, Va.:
Yellow-Naped Amazon.
WILSON, MASTER JAMES, New York City:
Alligators (2 specimens).

YANDELL, L. P., JR., Rye, N. Y.:
Raccoon.

ZELL, GEORGE L., Bridgehampton, L. I.:
3 Canada Geese, 3 Black Ducks.
ZOBEL, HERBERT G., North Pelham, N. Y.:
2 Hog-Nosed Snakes, 2 Garter Snakes, 1 Ribbon Snake, 1 Water Snake. Total, 6 specimens.

Library

BY GIFT.

BEEBE, WILLIAM, New York City:
An Essay on the Natural History of Guiana, by Edward Bancroft.
Among the Indians of Guiana, by Edward F. imThurm.
Hunting and Shooting in Ceylon, by Harry Storey.
Climate, by Robert DeCourcy Ward.
The Kingdom of the Yellow Robe, by Ernest Young.

GRANT, MADISON, New York City:
The Passing of the Great Race, by Madison Grant.

PAUL, JOHN JAY, Watertown, Fla.
The Birds of Florida, by C. J. Maynard.
Gleanings of Natural History, by George Edwards. 3 Vols.
A Natural History of Birds, by George Edwards. 4 Vols.
Arctic Zoology, by Thomas Pennant. 2 Vols.
Supplement to the Arctic Zoology, by Thomas Pennant.
History of Quadrupeds, by Thomas Pennant.
In Haunts of Wild Game, by Frederick Vaughn Kirby.
Catalogue of Seals and Whales in the British Museum, by John Edward Gray.
Supplement to the Catalogue of Seals and Whales in the Briitsh Museum, by John Edward Gray.
Game Birds of the United States, by Daniel Giraud Elliot.
Travels into North America, by Peter Kalm. 2 Vols.
Catalogue of the Animals of North America, by John Reinhold Forster.
Manual of Ornithology: The Water Birds, by Thomas Nuttall.
Manual of Ornithology: The Land Birds, by Thomas Nuttall.
The Animal Kingdom, by Baron Cuvier. 16 Vols.
Report on Reptiles and Batrachians, by Samuel Garman.
Report upon Natural History Collections of Alaska, by Edward W. Nelson.
Contributions to the Natural History of Alaska, by L. M. Turner.
North American Shore Birds, by Daniel Giraud Elliot.
Wild Fowl of North America, by Daniel Giraud Elliot.
Game Birds of North America, by Daniel Giraud Elliot.
Fur-Bearing Animals, by Elliott Coues.
The Gardens and Menageries of the Zoological Society. 2 Vols.
Wild Beasts and Their Ways, by Sir Samuel W. Baker. 2 Vols.
The Antelope and Deer of America, by John Dean Caton.
A Synopsis of the Trochilidae, by Daniel Giraud Elliot. Folio.
Monograph of the Bucerotidae, by Daniel Giraud Elliot. (2 copies.) Folio.
Monograph of the Pittidae, or Ant Thrushes, by Daniel Giraud Elliot. (2 copies.) Folio.
The Partridges of America, by John Gould. Folio.
Gleanings from the Menagerie and Aviary at Knowsley Hall, by J. E. Gray. Folio.
Histoire Naturelle des Mamifères, by Geoffroy Saint-Hilare and Frederic Cuvier. 4 Vols. Folio.
The Birds of North America, by Daniel Giraud Elliot. 2 Vols. Folio.
Monograph of the Paradiseidae, by Daniel Giraud Elliot. Folio.
Mammalogy and Ornithology, U. S. Exploring Expedition, by John Cassin. Text and Atlas. 2 Vols.
Illustrations of Indian Zoology, by John Edward Gray. 2 Vols. Folio.
Narrative of a Second Voyage in Search of a Northwest Passage, by Sir John Ross.
Appendix to the Narrative of A Second Voyage in Search of a Northwest Passage, by Sir John Ross.
Atlas of the Birds of North America, by Baird, Cassin and Lawrence.

The Birds of North America, by Baird, Cassin & Lawrence.
Mammals of North America, by Spencer F. Baird.
History of North American Birds. Land Birds. By Baird, Brewer & Ridgway. 3 Vols.
The Water Birds of North America, by Baird, Brewer & Ridgway. ("Heads" plain.) 2 Vols.
The Water Birds of North America, by Baird, Brewer & Ridgway. ("Heads" colored.) 2 Vols.
Fauna Boreali Americana. Quadrupeds and Fishes. By John Richardson.
Fauna Boreali Americana. Birds. By John Richardson.
Fauna Boreali Americana. Insects. By John Richardson.
Monographs of North American Rodentia, by Coues & Allen.
The Wild Cattle of Great Britain, by Rev. John Storer.
American Natural History, by John D. Godman. 3 Vols.
American Natural History. Atlas. By John D. Godman.
Travels to the Sources of the Missouri River, by Lewis & Clarke. 3 Vols.
Entomology of North America, by Thomas Say. 2 Vols.
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Hawks and Owls of the United States, by A. K. Fisher.
With Flashlight and Rifle, by C. G. Schillings.
In Wildest Africa, by C. G. Schillings.
The Land of the Lion, by W. S. Rainsford.
Elephant-Hunting in East Equatorial Africa, by Arthur H. Neumann.
Travel and Adventure in Southeast Africa, by Frederick Courtney Selous.
Big Game Shooting in Alaska, by C. R. E. Radclyffe.
Sport in the Highlands of Kashmir, by Henry Z. Darrah.
The Viviparous Quadrupeds of North America. Text. By Audubon & Bachman. 3 Vols. Folio.
The Viviparous Quadrupeds of North America. Plates. By Audubon & Bachman. 3 Vols. Folio.
American Ornithology, by Charles Lucian Bonaparte. 4 Vols.

PAYNE, COL. OLIVER H., ESTATE OF, New York City:
The Viviparous Quadrupeds of North America. Plates. By Audubon & Bachman. 3 Vols. Doub. elephant folio.
The Birds of North America. Plates. By John James Audubon. 3 Vols. Doub. elephant folio.

National Collection of Heads and Horns

BY GIFT.

BRADLEY, JOHN R., New York City:
Gemsbock (*Oryx gazella*). Mounted Head.
Kirk's Dik-Dik Antelope (*Madoqua kirki*). Mounted entire.
Goitred Gazelle (*Gazella subgutturosa*). Mounted Head.

HARRISON, ARCHIBALD, Manila, P. I.:
Gaur (*Bos gaurus*). 4 skulls and horns and head skins.
Cochin China Bodung (*Bos sondaicus subsp*). Skull and horns.
Mindoro Tamarao (*Anoa mindorensis*). Skull and horns of adult bull, and mounted head of young female.
Philippine Sambar Deer (*Cervus unicolor philippinus*). Skull and antlers.
Tiger Skulls. One male and one female.

VELTEN, WILLIAM F., New York City:
Texas White-Tailed Deer (*Odocoileus virginianus*). Two mounted heads, with interlocked antlers.

Plants

BY GIFT.

WISSMAN, F. D. R., New York City:
2 Bay Trees, 1 Kentia Palm.
WYCKOFF, MRS. PETER BROWN, Southampton, L. I.:
2 Kentia Palms.

AT THE AQUARIUM.

BY GIFT.

BAUMANN, MISS BLANCH, New York City:
Painted Turtle.
BLISS, MRS. New York City:
Painted Turtles (6 specimens).
BLUME, MR. SIDNEY, Brooklyn, N. Y.:
Alligator.
BRENNER, MISS, Bronx, New York City:
Alligator.
DEGENHARDT BRO'S, New York City:
Gorgonias (4 specimens).
DORN, MR. RICHARD, New York City:
Common Newts (6 specimens), Mud Minnows (8 specimens), Sunfishes (25 specimens), Crappie (4 specimens), Rock Bass (3 specimens), Musk Turtles (2 specimens), Frog tadpoles (7 specimens).
EGGERING, MR. AUGUST, New York City:
Painted Turtles (3 specimens).
ENGINE COMPANY No. 3, Bayonne, N. J.:
Alligator.
FISCHER, MR. D. P., New York City:
Alligator.
FULLAGAR, MR. G. K., New York City:
Alligator.
FULLAGAR, MR. G. K., AND SAY, MR. E. L., Sanford, Fla.:
Large Alligator.
GLYNN, MR. WILLIAM, Brooklyn, N. Y.:
Diamondback Terrapin.
GRANT, MR. H. D., College Point, N. Y.:
Alligator.
HARTLEY, MR. JACK, New York City:
Snapping Turtle.
HASCY, MISS RUTH ELIZABETH, Clifton, N. J.:
Alligator.
HEITMANN, MR. LEWIS, West Hoboken, N. J.:
Land Hermit Crabs (6 specimens).
KAZMENSKY, MASTER ELIAS, Brooklyn, N. Y.:
Alligator.
KING, MRS. A., New York City:
Alligator.
KOCK, MR. VICTOR H., West Brighton, S. I.:
Alligator.
LINN, MR. HAMBURG, N. J.:
Alligator.
MAGUIRE, MRS. J. D., New York City:
Japanese Goldfish.
MELLEN, MISS IDA M., Brooklyn, N. Y.:
Japanese Fantails (3 specimens) and Japanese Snails (15 specimens).
MEYER, MR. A. E., New York City:
Bullfrogs (30 specimens).

MILNES, MR. JOHN, Port Richmond, S. I.:
Alligator.
NANN, ARTHUR H., East Orange, N. J.:
Alligator.
NATIONAL FISHERIES CO., New York City:
Leopard Frogs (65 specimens).
NEW YORK CONSERVATION COMMISSION, Albany, N. Y.:
Brook Trout (24 specimens); Brown Trout (12 specimens); Rainbow Trout (31 specimens).
OWSLEY, MISS LOIS, Monmouth Beach, N. J.:
Hermit Crab.
RACQUET AND TENNIS CLUB, New York City:
6 mounted specimens of large game fishes, including 2 tarpon, 2 tuna, 1 sailfish and 1 yellow-tail.
RUCKERTS, MR. E. J., Montclair, N. J.:
Alligators (2 specimens).
SCHEER, MR. O. J., Long Key, Fla.:
Large Alligator.
STURGES, MISS CLARE, AND MASTER EDWARD, Southport, Conn.:
Painted Turtles (6 specimens).
THE TEXAS CO., New York City:
Comet Goldfish (2 specimens).
TURNER, MR. THOMAS J., Oswego, N. Y.:
Large Alligator.
WALKER, CORPORAL M. E., New York City:
Alligator.
WESTERVELT, MRS. E. S., New York City:
Alligator.
WILKENING, MR. W., New York City:
Newts (4 specimens).
WILLIAMS, REAR ADMIRAL C. S., Brooklyn, N. Y.:
Large Leatherback Turtle.
WOODS, MISS J., Fitchburg, Mass.:
Alligator.

Mr. Clarence B. Sturges of Southport, Conn., deposited a North American Beaver, and Mr. August Belmont, of New York, deposited a large alligator.

PURCHASED BY THE N. Y. ZOOLOGICAL SOCIETY.

Fresh Water.—Slider Terrapin, 24; Painted Turtles, 36; Water Snakes, 3; Bullfrogs, 6; Rockfish, 2; Catfish, 121; Sleeper, 130; Water Plants, 50 bunches; Cabomba, 1,000 sprays.

Salt Water. Local.—Shad, 4; Flounders, 3; Sculpins, 5; Lamprey Eel, 2; Herring, 56; Sturgeon, 1; Fluke, 1; Rock Crabs, 2; Sunfish, 1; Flounders, 10; Prickly Skates, 18; Tom Cod, 1; Stone Crabs, 50; Spider Crabs, 3; Red Sponge, 18.

Salt Water, Tropical.—Muttonfish, 12; Spot Snapper, 21; Gray Grunt, 19; Beau Gregory, 30; Cowfish, 9; Graysby, 4; Porkfish, 92; Cavally, 1; Rock Hind, 8; Red-sided Parrot, 1; Slippery Dick, 6; Butterfly-fish, 8; Starfish, 3; Yellow-tail Angel, 3; Spotted Moray, 1; Coney, 1; Blue Angel, 49; White Grunt, 42; Amberfish, 2; Grass Porgy, 3; Rainbow Parrot, 9; Bastard Grunt, 2; Queen Angel, 10; Gray Snapper, 8; Black Grouper, 2; Latipinna, 40; Filefish, 5; Blue Tang, 1; French Angel, 3; Schoolmaster, 2; Pin-fish, 3; Surgeon-fish, 5; Black Angel, 32; Red Hogfish, 7; Four-Eye, 1; Glass Eye, 8; Sergeant Major, 42; Scamp, 1; Spadefish, 3; Margate Fish, 3; Shark Sucker, 1; Littlehead Porgy, 3; Ribbon-fish, 1; Red Hind, 4; Ocean Catfish, 4; Chub, 3; Yellow Grunt, 6; Black Margate, 4; Yellow Tail, 14; Blue Parrot, 6; Toad-fish, 3; Nurse Shark, 1; Dog Snapper, 6; Red Snapper, 12; Runner, 1; Squirrel-fish, 1; Blue-striped Grunt, 21; Scorpion-fish, 1; Queen Trigger, 10; Common Trigger, 6; Southern Puffer, 2; Spiny Lobster, 46; Diamond-back Terrapin, 1; Stone Crabs, 16; Her-

mit Crabs, 14; Giant Conch, 9; Hawksbill Turtle, 1; Sea Urchins, 16; Cowrie, 7; Tulip Conch, 1; Neverbite, 1; Butter Hamlet, 3; Round Sting-Ray, 1; Mud Parrot, 4; Round Pompano, 1; Soap-fish, 1; Princess Rockfish, 2.

COLLECTED BY EMPLOYES.

Fresh-Water.—White Perch, 23; Small-mouthed Black Bass, 2; Goldfish, 30; Catfish, 19; Carp, 196; Sunfish, 295; Crayfish, 174; Yellow Perch, 167; Pearl Roach, 2,325.

Salt Water.—Starfish, 75; Brown Sea Anemones, 700; Stone Crabs, 400; Blue Crabs, 100; Hermit Crabs, 6; Lobsters, 4; Mussels, 150; Chubs, 25; Sticklebacks, 10; Lebias, 25; Sea Lettuce, Eel Grass, *Soleria.* (Shrimps, Soft-shelled Clams, Mud Snails, Minnows and *Gammarus* collected in quantities too large to be counted.)

Many of the small and all of the injured and abnormal specimens collected are used for food; and some of the salt water material collected is supplied to the schools for small marine aquaria.

The specimens received during the year, as detailed in the foregoing list, totaled 7,241, of which 232 were donated, 2,283 purchased, and 4,726 collected by employes. In addition 6,150,000 fish eggs were received for the hatchery as follows:

Collected by employes	150,000 Yellow Perch eggs
Donated by U. S. Bureau of Fisheries, Washington, D. C.	500,000 Pike Perch eggs
	500,000 Whitefish eggs
Donated by N. Y. Conservation Commission, Albany, N. Y.	3,000,000 Smelt eggs
	2,000,000 Yellow Perch eggs

SPECIMENS RECEIVED BY EXCHANGE.

DETROIT AQUARIUM, Belle Isle, Detroit, Mich.:
Blue Catfish, 4; Stone Catfish, 8; Red Horse Suckers, 4; Common Suckers, 8; Rock Bass, 3; Small-mouthed Black Bass, 1; Quillbacks, 4; Drumfish, 5; Yellow Cat, 1; Mudfish, 6.

NEW JERSEY FISH COMMISSION, Hackettstown, N. J.:
Suckers, 5; Brook Trout, 22; Hybrid Trout, 5; Quinnat Salmon, 271; Bullheads, 15; Brown Trout, 34; Rainbow Trout, 18; Large-mouthed Black Bass, 10; Pickerel, 2; Eels, 5; Catfish, 4; also Quinnat Salmon, Brook, Rainbow, Hybrid and Brown Trout, and Landlocked Salmon to the number of 270 specimens.

The Aquarium Library

BY GIFT.

BROOKLYN AQUARIUM SOCIETY, Brooklyn, N. Y.:
The Aquarium Bulletin, 1918.

BROOKLYN INSTITUTE OF ARTS AND SCIENCES, Brooklyn, N. Y.:
Annual Report, Museum News and *Quarterly.*

CALIFORNIA ACADEMY OF SCIENCE, San Francisco, Cal.:
Proceedings.

CARNEGIE INSTITUTION OF WASHINGTON, Washington, D. C.:
Special Papers.

CENTURY ASSOCIATION OF NEW YORK, New York City:
Nature (London), 1907-16.
Popular Science Monthly, 1907-15.

CHILDREN'S MUSEUM, Brooklyn, N. Y.:
Bulletin for 1918.

DALL, DR. WILLIAM HEALEY, Washington, D. C.:
Checklist of the Recent Bivalve Mollusks, by Wm. H. Dall, Sc.D.

JENNINGS, MR. G. E., New York City;
Fishing Gazette.

LIVERPOOL MARINE BIOLOGICAL COMMITTEE, Liverpool, Eng.:
Annual Reports, Marine Biological Station at Port Erin, (through Prof. W. A. Herdman, Director).

MELLEN, MISS IDA M., Brooklyn, N. Y.:
Denizens of the Deep, by G. Hartwig.
Sea-Monsters and Sea-Birds, by G. Hartwig.
Anatomy of Vertebrated Animals, by Thos. H. Huxley.
Structure of Animal Life, by Louis Agassiz.
Ancient Life History, by H. Alleyne Nicholson.
Fragments of Science, by John Tyndall.
Floating Matter of the Air, by John Tyndall.
Animal Intelligence, by Wesley Mills.
Anthropoid Apes, by Robert Hartmann.
The Evolution of Man, by Ernst Haeckel.
Insectivorous Plants, by Charles Darwin.
Expression of the Emotions in Man and Animals, by Charles Darwin.
From Monkey to Man, by Austin Bierbower.
Folk of the Wild, by Bertram Atkey.
Animals and Plants under Domestication, by Charles Darwin (2 vols.).

POYSER, MR. W. A., Philadelphia, Pa.:
Aquatic Life, 1918.

SMITHSONIAN INSTITUTION, Washington, D. C.:
Special Papers.

STATE OF CALIFORNIA FISH AND GAME COMMISSION, San Francisco, Cal.:
Current *Reports* and back numbers.

TOWNSEND, CHARLES H.:
North American Mammals, by Edward W. Nelson, illustrated by Louis Agassiz Fuertes.
North American Birds, by Henry W. Henshaw.

U. S. BUREAU OF FISHERIES, Washington, D. C.:
Reports, Bulletins and *Circulars*.

U. S. DEPARTMENT OF AGRICULTURE, Washington, D. C.:
Frogs, Toads and Carp as Eradicators of Disease, by Ch. Wardwell Stiles.

U. S. NATIONAL MUSEUM, Washington, D. C.:
Proceedings, Vols. 52 and 53 (1917).
Annual Report, 1917.

UNIVERSITY OF CALIFORNIA, Berkeley, Cal.:
Publications in Zoology.

WILSON, PROF. CHARLES BRANCH, Westfield, Mass.:
Contributions to Canadian Biology, 1906-10.
13 pamphlets by Prof. Wilson, as follows:
North American Parasitic Copepods Belonging to the Lernaeidae with Revision of Entire Family.
Descriptions of New Species of Parasitic Copepods in Collections of U. S. National Museum.
North American Parasitic Copepods—Part 9. The Lernaeopodidae.
North American Parasitic Copepods Belonging to the Family Ergasilidae.
A New Species of Argulus, with more complete account of Two Species Already Described.
Additional notes on the Development of the Argulidae, with Description of a New Species.
Notes on Jamaica Fish and their Parasites.
The Classification of the Copepods.
New Species of Parasitic Copepods from the Massachusetts Coast.
Dragon Flies of the Cumberland Valley in Kentucky and Tennessee.
Dragonflies of the Mississippi Valley Collected during the Pearl Mussel Investigations on the Mississippi River, July and August, 1907.
The Economic Relations, Anatomy, and Life History of the Genus Lernaea.
On Some Parasitic Copepoda.

CHARTER

OF THE

NEW YORK ZOOLOGICAL SOCIETY

CHAPTER 435, LAWS OF 1895.

AN ACT to incorporate the New York Zoological Society and to provide for the establishment of a zoological garden in the city of New York.

As amended by Chapter 146 of the Laws of 1902; and by Chapter 240 of the Laws of 1910.

See Chapter 432 of the Laws of 1900.

See Chapter of the city of New York, Section 626 of the Laws of 1901

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Charles A. Dana, Oswald Ottendorfer, Andrew H. Green, William H. Webb, Henry H. Cook, Samuel D. Babcock, Charles R. Miller, George G. Haven, J. Hampden Robb, Frederick W. DeVoe, J. Seaver Page, Rush C. Hawkins, David James King, Wager Swayne, Charles A. Peabody, Jr., Charles E. Whitehead, Charles R. Flint, Samuel Parsons, Jr., Mornay Williams, Henry E. Gregory, Isaac W. Maclay, Isaac Rosenwald, Hugh N. Camp, Andrew D. Parker, Cornelius Van Cott, William F. Havemeyer, Frederick Shonnard, William W. Thompson, Alexander Hadden, Edward L. Owen, John H. Starin, Rush S. Huidekoper, William W. Goodrich, Albert H. Gallatin, Frederick S. Church, Edward C. Spitzka, Robert L. Niles, Madison Grant, C. Grant La Farge, William Van Valkenburg, and such other persons as may, under the provisions of its by-laws, become members of the corporation hereby created, are hereby created a body corporate and politic, by and under the name of New York Zoological Society.

SEC. 2. Said corporation shall have power to establish, maintain and control zoological parks, gardens, or other collections for the promotion of zoology and kindred subjects, and for the instruction and recreation of the people. Said corporation may collect, hold, and expend funds for zoological research and publication, for the protection of wild animal life, and for kindred purposes, and may promote, form, and co-operate with other associations with similar purposes, and may purchase, sell, or exchange animals, plants, and specimens appropriate to the objects for which it was created.

SEC. 3. The managers of said corporation shall have power to make and adopt by-laws for the management and government of its affairs and business, for the admission, suspension, and expulsion of its members, and for the terms and conditions of membership; to prescribe the number and mode of election of its officers; to define their duties; to provide for the safe-keeping of its property, and from time to time to alter and modify its By-laws.

SEC. 4. The affairs and business of said corporation shall be managed and controlled by a board of managers, the number of whom shall be prescribed by the by-laws. The first board of managers shall be divided by lot into three classes, equal in number, one of which classes shall hold office for one year, another for two years, and the other for three years; and all persons elected to be managers at any subsequent election shall hold office for three years, and until others are elected in their stead. There shall be a president, two vice-presidents, treasurer and secretary, to be elected by the board of managers annually, who shall hold office until others are elected in their stead. The first meeting under this act may be held at any time upon a notice of five days, signed by any five of the incorporators named in the first section of this act, fixing a time and place for such meeting, a copy whereof shall be mailed to each of said incorporators at his usual post-office address, and twelve of such incorporators shall be a quorum for the purpose of organization, adoption of by-laws, and election of officers. No manager of said corporation shall be interested, directly or indirectly, in any contract concerning its property or affairs.

SEC. 5. Said corporation may raise money by the issue of bonds, secured by a mortgage on any or all of its property not acquired from said city or state.

SEC. 6. Said corporation may take, purchase, and hold real and personal estate necessary for the purpose of its incorporation, and shall possess the general powers and be subject to the restrictions and liabilities prescribed in Article II of Chapter 23 of the Consolidated Laws, entitled "General Corporation Law," being chapter 28 of the Laws of 1909.

SEC. 7. The commissioners of the sinking fund of the said city are authorized in their discretion to allot, set apart, and appropriate for the use of said corporation, any of the lands belonging to said city north of One Hundred and Fifty-fifth Street, but not in the Central Park, and such appropriation may be revoked if, after the expiration of five years from the passage of the act, a zoological garden is not established thereon; said grounds thus set apart and appropriated shall be used or no purpose whatsoever except those aforesaid. As soon as any lands are set apart the Mayor of the said city of New York, and the President of the Department of Parks of said city, shall become and be *ex-officio* members of the board of managers of said corporation. If at any time the animals now composing the menagerie of Central Park shall be removed therefrom by the authorities having charge thereof, said authorities may make an arrangement with the incorporators named in this act or the corporation formed by them for leasing or sale of such animals to such incorporators or corporation, and said incorporators or corporation shall have a preference over any other person or corporation in respect thereto upon the same terms which said authorities could make with any such other person or corporation, or upon such other terms as to such authorities may seem proper, but nothing herein provided shall be construed as giving the commissioners of the Department of Public Parks authority to sell, lease, transfer, or in any other wise dispose of said animals or other property connected with or belonging to said menagerie.

SEC. 8. Admission to the said gardens shall be free to the public for at least four days, one of which shall be Sunday, in each week, subject to such rules and regulations as shall be prescribed by said corporation.

SEC. 9. This act shall take effect immediately.

AN ACT to amend chapter four hundred and thirty-five of the laws of eighteen hundred and ninety-five, entitled "An act to incorporate the New York Zoological Society and to provide for the establishment of a zoological garden in the City of New York" in relation to real and other property.

Became a law May 26, 1917, with the approval of the Governor. Passed, three-fifths being present.

ACCEPTED BY THE CITY.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Chapter four hundred and thirty-five of the laws of eighteen hundred and ninety-five, entitled "An act to incorporate the New York Zoological Society and to provide for the establishment of a zoological garden in the City of New York," as amended by chapter two hundred and forty of the laws of nineteen hundred and ten, is hereby further amended by adding thereto a new section to read as follows:

7-a. The board of estimate and apportionment in the City of New York may, in its discretion, set apart and appropriate upon such conditions as it may deem expedient for the extension and development of the work and objects of the said New York Zoological Society, the whole or any part of that portion of Bronx Park in the City of New York, lying to the south of Pelham avenue and Pelham parkway, for the use of the said New York Zoological Society, the said lands so to be appropriated to be described particularly in the order of the board of estimate and apportionment hereby authorized. The said board of estimate and apportionment may also, in its discretion at the time of setting apart and appropriating said lands or any part thereof to the New York Zoological Society, and annually thereafter, in addition to any sum or sums which it may have appropriated for the support and maintenance of the New York Zoological Park, appropriate to the use of said society, such sum or sums in its discretion for the care and maintenance of the additional lands that may be allotted to the said society under the authority hereby conferred, as it may deem best.

2. This act shall take effect immediately.

NEW YORK ZOOLOGICAL SOCIETY

AND THE

NEW YORK AQUARIUM

CHAPTER 441, LAWS OF 1902.

AN ACT to authorize a further appropriation to the New York Zoological Society for the support of the New York Aquarium.

As amended by Chapter 239 of the Laws of 1910.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Chapter four hundred and forty-one of the laws of nineteen hundred and two, entitled "An Act to authorize a further appropriation to the New York Zoological Society for the support of the New York Aquarium," is hereby amended to read as follows:

SECTION 1. The Board of Estimate and Apportionment of the City of New York may annually, in its discretion, include in the budget for the then next ensuing financial year, in addition to any sum or sums which may be appropriated for the adequate support and maintenance of the New York Zoological Park or gardens, situated in the borough of the Bronx, and administered and controlled by the New York Zoological Society, a further sum or sums, in its discretion, for the use of the said New York Zoological Society, provided, however, that the additional appropriation hereby authorized shall be made only in case an agreement is entered into between the said New York Zoological Society and the City of New York, acting by its Board of Estimate and Apportionment for the adequate keeping, maintenance, extension, preservation and exhibition of the building and approaches thereto and collection of aquatic animals and plants contained therein, known as the New York Aquarium, situated in the Battery Park in the Borough of Manhattan in said city, and also for furnishing opportunities for study, research and publication in connection with said collections, which contract the said Board of Estimate and Apportionment is hereby expressly authorized, in its discretion, to make upon such terms and conditions as may be agreed upon with the said New York Zoological Society, and which contract shall also provide how the duty of the commissioner of parks for the borough of Manhattan and Richmond in respect to maintaining the said aquarium now imposed upon him by law shall be performed.

SEC. 2. This act shall take effect immediately.

BY-LAWS

OF THE

NEW YORK ZOOLOGICAL SOCIETY

AMENDED TO JANUARY 21, 1914.

ARTICLE I.

MEETINGS OF THE SOCIETY.

SECTION 1. The office and place of business of the New York Zoological Society shall be in the City of New York, unless otherwise ordered.

SEC. 2. The Society shall hold its annual meeting for the election of Managers, and other business, on the second Tuesday of January, or such day thereafter during the month of January to which said annual meeting shall adjourn.

SEC. 3. Special meetings of the Society shall be called by the Secretary, upon the request of the President or the Chairman of the Executive Committee, or at the written request of ten members.

SEC. 4. Notices of all meetings shall be mailed to each member of the Society at least three days before such meeting.

SEC. 5. At meetings of the Society twenty members shall constitute a quorum.

SEC. 6. The order of business shall be as follows:

1. Roll Call.
2. Reading of minutes not previously read.
3. Report of Executive Committee.
4. Report of Secretary.
5. Report of Treasurer.
6. Report of the Director of the Zoological Park.
7. Report of Director of the Aquarium.
8. Election of Managers.
9. Communications.
10. Miscellaneous business.
11. Reports and resolutions.

ARTICLE II.

BOARD OF MANAGERS.

SEC. 1. The Board of Managers shall consist of thirty-six members, together with the Mayor of New York and President of the Park Board, or Commissioner for the Bronx, who shall be members *ex-officio* of the Board.

SEC. 2. Nineteen Managers shall constitute a quorum, but ten Managers may transact current business, and adjourn, subject to the subsequent approval of a meeting at which a quorum shall be present.

SEC. 3. The Board of Managers shall hold an annual meeting on the third Tuesday of January, or on such day thereafter to which said annual meeting shall adjourn. Regular meetings of the Board may also be called by the Secretary on the third Tuesdays of October and April upon the request of the President or Chairman of the Executive Committee. Special meetings of the Board shall be called at any time by the Secretary upon the request of the President or Chairman of the Executive Committee, or at the written request of five managers.

SEC. 4. Notices of meetings of the board shall be mailed to each Manager at least three days before such meetings.

SEC. 5. The successors to the outgoing class of Managers shall be elected by the Society at its annual meeting, but vacancies in the board may be filled for the unexpired term by the Board of Managers, or by the Executive Committee.

SEC. 6. A Nominating Committee shall be annually appointed by the Executive Committee, and shall consist of three members of the Society at large, who shall nominate and post ten days before the annual election the names of twelve persons to succeed the outgoing class of Managers in a conspicuous place in the office of the Society.

SEC. 7. No person shall be eligible for the election of the Board of Managers except to fill vacancies, unless his name shall have been posted as a candidate by such committee, or by not less than ten members, in writing, in a conspicuous place in the office of the Society ten days before the annual election. All candidates for election as Managers must be Life Members, Patrons, Associate Founders, or Founders of the Society.

SEC. 8. Any Manager who shall fail to attend three consecutive meetings of the Board, unless excused by a vote of the Board, shall cease to be a Manager.

SEC. 9. The Board of Managers shall at its annual meeting elect a President, two Vice-Presidents, a Secretary, and Treasurer, who shall hold office for one year, or until their successors are elected. The President, Vice-Presidents, and Treasurer shall be members of the Board.

SEC. 10. The Director of the Zoological Park, the Director of the Aquarium, and all other persons employed by the Society, shall be appointed by the Board or by the Executive Committee, and shall hold office during the pleasure of the Board.

SEC. 11. The Board shall, at its annual meeting, elect an Executive Committee and Auditing Committee, which shall hold office for one year, or until their successors are elected. The Board of Managers and the Executive Committee shall also have authority to appoint such other Committees or officers as they may at any time deem advisable and to delegate to them such powers as may be necessary.

SEC. 12. The order of business of the meetings of the Board shall be as follows:

1. Roll Call.
2. Reading of minutes not previously read.
3. Report of Executive Committee.
4. Report of Secretary.
5. Report of Treasurer.

6. Report of Auditing Committee.
7. Report of Director of Zoological Park.
8. Report of the Director of the Aquarium.
9. Election of Officers.
10. Election of Committees.
11. Election of new members.
12. Communications.
13. Miscellaneous business.

SEC. 13. All reports and resolutions shall be in wriitng, and the ayes and nays may be called on any resolution at the request of one Manager.

SEC. 14. Whenever the funds of the Society shall permit, the Board of Managers or the Executive Committee may award medals or other prizes for meritorious work connected with the objects of the Society.

ARTICLE III.

OFFICERS.

SEC. 1. The officers of the Society shall consist of a President, two Vice-Presidents, a Treasurer, a Secretary, and a Director of the Zoological Park. These officers, with the exception of the Director, shall be elected at the annual meeting of the Board of Managers, but any vacancy may be filled for an unexpired term by the Board of Managers, or by the Executive Committee, until the next annual election.

SEC. 2. The President shall preside at all meetings of the Board and of the Society, and shall be *ex-officio* a member of the Executive and Auditing Committees.

SEC. 3. The Vice-Presidents shall, in the absence of the President, perform his duties and possess his powers, acting in the order of their election.

SEC. 4. The Treasurer shall receive, collect and hold, subject to the order of the Board of Managers, or the Executive Committee, all dues, subscriptions, warrants from the City, fees and securities. He shall pay all bills as ordered by the Board of Managers or the Executive Committee, and shall report to the Society at its annual meeting, and to the Board of Managers at all regular meetings, and to the Executive Committee at each meeting. He shall keep all moneys and securities in some bank or trust company to be approved by the Board of Managers or Executive Committee. The books of the Society shall at all times be open to the inspection of the Managers.

SEC. 5. The Secretary shall be a salaried officer of the Society. He shall be present, unless otherwise relieved by the Board or Executive Committee, at all meetings of the Society, of the Board and of the Standing Committees. He shall keep a careful record of all proceedings, shall have the custody of the seal, archives and books, other than books of account, and shall conduct the correspondence of the Society. He shall issue all notices and tickets, and shall perform such other duties as the Board may direct. He shall be a member *ex-officio* of the Executive, Aquarium, and Auditing Committees, and of the Scientific Council.

SEC. 6. The Director of the Zoological Park shall be elected annually by the Executive Committee at a salary to be determined by said Committee, and shall hold office until removed or his successor chosen by said Committee. He shall

be the responsible administrative officer of the Park, and shall recommend to the Executive Committee candidates for the various positions in the Park. He shall also perform all such other duties in connection with the business, scientific, and literary administration of the Society as may be assigned to him by the Executive Committee.

SEC. 7. The Director of the Aquarium shall be elected annually by the Executive Committee, and shall hold office until removed or his successor is chosen by said Committee. He shall be the responsible administrative officer of the Aquarium, and shall recommend to the Executive Committee all candidates for positions in the Aquarium. The director of the Aquarium shall be *ex-officio* a member and Chairman of the Aquarium Committee. He shall perform such other duties in connection with the Aquaruim as may be assigned to him by the Executive Committee.

ARTICLE IV.

COMMITTEES.

SEC. 1. There shall be two standing committees, the Executive Committee and the Auditing Committee, which shall hold office for one year or until their successors are elected.

SEC. 2. The Executive Committee shall consist of seven Managers, together with the President and Secretary of the Society *ex-officio*. Four members shall constitute a quorum, and all meetings shall be called by the Chairman. The Executive Committee shall fill all vacancies in its own number and shall have the full powers of the Board of Managers, except so far as such delegation of power may be contrary to law.

SEC. 3. The Executive Committee shall have the control and regulation of the collections, library, and all other property of the Society, and shall have power to purchase, sell, and exchange specimens and books, to employ and control all officials and employees of the Society, Park, and Aquarium, and generally to carry out in detail the directions of the Board of Managers and the terms of any contract between the City, or Park Board, and the Society.

SEC. 4. All the rules and regulations for the examinaiton of applicants for the various positions in the Park and Aquarium shall be made or approved by the Executive Committee.

SEC. 5. The Executive Committee may regulate the auditing and payment for all current accounts.

SEC. 6. The Executive Committee shall annually appoint an Aquarium Committee, whose duties and powers are set forth in Section II of Article IV of these By-Laws.

SEC. 7. The Executive Committee shall annually appoint a Nominating Committee, whose duties and powers are set forth in Sections 6 and 7, Article II, of these By-Laws.

SEC. 8. It shall also appoint a Scientific Council, whose powers and duties are set forth in Section 2 of Article V of these By-Laws.

SEC. 9. The Committee shall make a written report at each regular meeting of the Board of Managers.

SEC. 10. The Auditing Committee shall consist of three regular members of the Society, in addition to the President and Secretary, members *ex-officio*, and vacancies shall be filled by the Executive Committee. It shall be the duty of

the Auditing Committee to audit, annually, the accounts of the Treasurer, of the Director of the Zoological Park, and of the Director of the Aquarium, and any other accounts of the Society, and shall report to the Board of Managers at its annual meeting.

SEC. 11. The Executive Committee shall annually appoint an Aquarium Committee, not to exceed eight members of this Society, who shall hold office until their successors are chosen. All vacancies shall be filled by the Executive Committee. The Director of the Aquarium shall be *ex-officio* a member and the Chairman of the Aquarium Committee, and such Committee may vest in him any or all of its powers. The Chairman of the Executive Committee and the Secretary of the Society shall also be *ex-officio* members of the Aquarium Committee. Three members shall constitute a quorum. The Executive Committee may delegate to the Aquarium Committee such powers as it may deem proper.

ARTICLE V.

SCIENTIFIC COUNCIL.

SEC. 1. The Executive Committee shall annually appoint a Scientific Council of not more than ten members, and shall fill all vacancies. Members of the Council shall hold office until their successors are appointed.

SEC. 2. The duties of the Council shall be to act as an advisory board in all matters pertaining to the scientific administration of the Society, and especially as to the scientific features of the Park, the promotion of zoology by publications and otherwise, and the preservation of the native fauna of America.

SEC. 3. Four members, including the Chairman, shall constitute a quorum. The Chairman shall be elected annually by the Council. The Chairman of the Executive Committee and the Secretary of the Society shall be members *ex-officio* of the Council.

ARTICLE VI.

MEMBERS.

SEC. 1. The present members and such others as shall become associated with them, under the conditions prescribed by the By-Laws, shall be members of this Society as long as they shall comply with the By-Laws.

SEC. 2. Members failing to comply with these By-Laws, or for other good and sufficient cause, may be expelled from the Society by the Executive Committee.

SEC. 3. Candidates for membership shall be proposed and seconded by members of the Society. The name, occupation, and place of residence of every member as proposed shall be submitted for election to the Board of Managers or the Executive Committee, and such person, when elected, shall become a member upon payment of the annual dues, or of the fees as prescribed below.

SEC 4. There shall be a class known as Fellows, which shall consist of members of the Society who have rendered marked services to science, and shall be chosen by the Executive Committee. The privileges of Fellows shall be in all respects the same as those of regular members of the Society, but they shall be exempt from the payment of annual dues.

SEC. 5. The annual dues shall be ten dollars, payable in advance, on the first day of May of each year, but the Executive Committee may remit the dues

for the current year in the case of members elected between January 1st and May 1st of each year. The classes of membership shall be as follows:

SEC. 6. The payment of $200 at one time shall constitute any member a Life Member.

A member who has paid annual dues for a period of five years may thereafter, at any time, upon the payment of the difference between the amount of dues already paid and $200, became a Life Member, but such payment shall be not less than $100.

SEC. 7. The payment of $1,000 at one time, or in the case of a Life Member, of $800, shall constitute any member a Patron.

SEC. 8. The payment of $2,500 at one time, or in the case of a Patron of $1,500, or of a Life Member of $2,300, shall constitute any member an Associate Founder.

SEC. 9. Any member who shall donate to the Society $5,000, or property of equal value, or any Associate Founder who shall donate $2,500, or any Patron who shall donate $4,000, may be elected by the Board of Managers or Executive Committee a Founder.

SEC. 10. Any member who shall have donated to the Society ten thousand dollars ($10,000), or its equivalent, may be elected by the Board of Managers or the Executive Committee a Founder in Perpetuity. Such Founder in Perpetuity shall have the power to designate by a last will and testament his successor, who shall thereupon be entitled to all the rights and privileges of the original Founder in Perpetuity, including the right of designating in turn his successor.

SEC. 11. Any member who shall have donated to the Society $25,000, or its equivalent, may be elected by the Board of Managers, or the Executive Committee, a Benefactor. Benefactors shall have the rights and privileges of a Founder in Perpetuity.

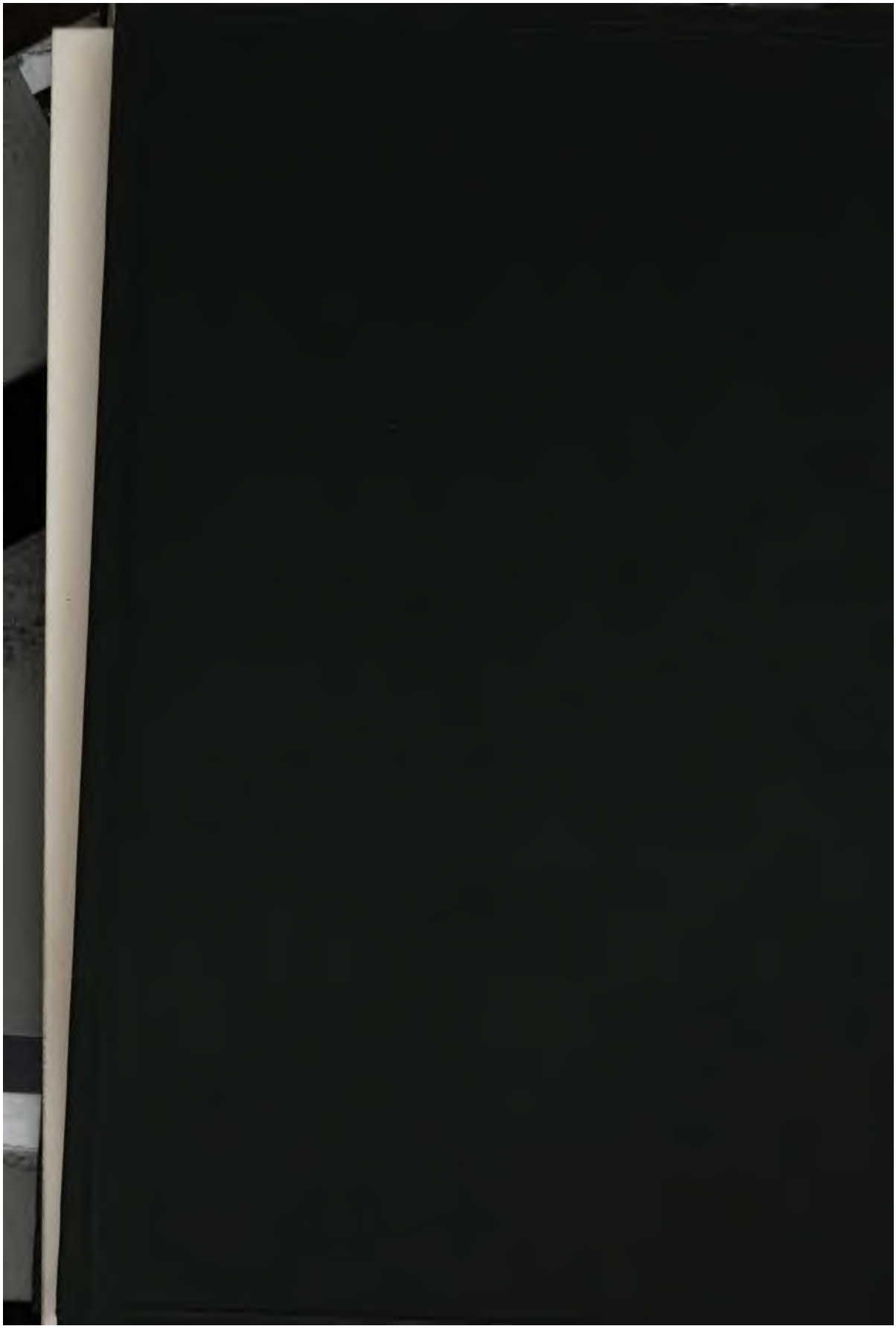
SEC. 12. Persons who have rendered marked service in the science of zoology or natural history may be elected Honorary Members, but not more than three such Honorary Members shall be elected in any one calendar year.

SEC. 13. A resident member who shall have rendered marked scientific or professional services to the Society in any branch of its work may be elected by the Executive Committee a Life Member, Patron, Associate Founder, or Founder. A resident of New York who shall have rendered marked service in zoology or natural history may be elected by the Executive Committee a Permanent Fellow.

SEC. 14. Non-residents who communicate valuable information to the Society, or who have rendered marked service in the science of zoology or natural history, may be elected Corresponding Members.

SEC. 15. Benefactors, Founders in Perpetuity, Founders, Associate Founders, Patrons, Life Members, Honorary Members, Permanent Fellows, Fellows, and Corresponding Members shall be exempt from annual dues.

ARTICLE VII.

PRIVILEGES OF MEMBERS.

SEC. 1. A member's ticket admits the member and his immediate family to the Park on reserve days, and to all lectures and special exhibitions, and may be used by the member's immediate family, and shall be good for the current year,